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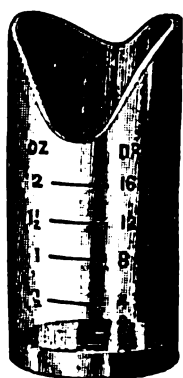
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Original Articles.

NOTES ON MULTIPLE PRIMARY TUMORS.¹

BY PAUL G. WOOLLEY, B.S., M.D. (J. H. U.),

Late Fellow in Pathology, McGill University.

It will not be misstating the ordinary conception regarding malignant growths to remark that (1) when the individual is the victim of cancer or sarcoma, only one form of active neoplasm is present, though there may be numerous metastases in various regions, but all these of one origin and derived from the single primary growth; and (2) that the primary growth is single, originating from one single focus. I do not mean to say that in our experience there are not cases in which these postulates are found wanting, but what I do mean is that our working plan or mental type of the process of malignancy does conform to these postulates, and to such an extent that in attempting to formulate ideas as to the nature of cancerous processes, we are continually influenced by them, and our theory of malignancy influenced accordingly.

Regarding the cancer as originating from a single focus, we are apt to see a parallelism between the malignant process and that seen in the infectious granulomata, when, also, there is in general one point of primary infection from which the morbid condition develops, and we find a difficulty in forming a clear idea of the process as essentially a tissue dyscrasia. For, were this so, why should there not be multiple primary foci of new growth throughout the tissue, or organ, or system?

It will be of service, I think, to call attention to the fact that this common conception of a primary focus of growth is far from having an absolutely demonstrated foundation; that when we are, apparently, dealing with a single primary focus, we often have, as Peterson² has shown, in his reconstruction models, multiple foci; that there are not infrequent cases in which it would seem as probable, or more probable, that what we are dealing with is not extension through a tissue or organ, or system, but the independent development of new growths, of like histological characters, malignant as well as benign, at separated points—and this presumably under the influence of a common affection at the different points—and that there are very many cases on record in which there has been the simultaneous presence and growth of neoplasms of very different orders.

I cannot but regard a study of these conditions as throwing light upon the mode of origin of tumors in general.

My attention has been directed to this subject by the study of a case that I have reported in another connection,³ which seems to me to afford an interesting example of what Walter⁴ has called a "system affection" by neoplasms. It is since reading the literature upon the subject of multiple growths that the significance of what I there observed has been impressed upon me, more especially as supporting or being in harmony with Adami's conceptions of the nature of tumor processes.

¹ From the J. H. B. Molson Laboratory of Pathology, McGill University, Montreal, Canada.

² Beitr. z. klin. Chir., xxxii.

³ To appear in the Journal of Experimental Medicine.

⁴ Arch. f. klin. Chir., 1896, lili.

Briefly, the history of my case was as follows:

A man, forty-one years old, was admitted to the Royal Victoria Hospital under Dr. Stewart, with definite symptoms pointing to the existence of cerebral tumors. At autopsy the condition was found to be one of primary growths, of the adenocarcinomatous type, in both adrenals, with secondary growths in the neighboring retroperitoneal glands, right lung and brain. The differences in the structures of primary and the metastatic growths I cannot here detail, nor can I go into the meaning of these differences—these things I have discussed at length in the description of the case. All I need say now is that extension at a distance was clearly through the venous system; that the secondary growths in lymph glands, lung and brain, were of a much more malignant type than the primary growths, and that in the two adrenals the separate nodules of growth, some five in number, were of identical appearance, those in the right being larger and perhaps older.

There could be no question as to the places or origin of the primary growths, nor as to the steps in the development of these. All the nodules in the adrenals were in connection with, and showed structural relationship to, the zona fascicularis, and, what is more,—here as in a very similar case reported by Jores⁵ (and in which there was likewise a remarkable difference between the primary and secondary growths),—*the transition from normal gland cells of the zona fascicularis to tumor cells was a most noticeable microscopic feature.* This transition of the cells in the immediate neighborhood of the evidences of new growth was equally well seen in both adrenals.

Compared with the wide difference in the appearances of the secondary growths in other tissues, the various nodules in the adrenals were histologically identical; the nodules in either organ were separated by areas of normal gland substance, and even if it be urged that these multiple nodules in the one organ are explained by metastases, the same cannot satisfactorily explain the appearance of growths in the other. The appearance of the nodules in the two glands, together with the facts just mentioned, namely, that the nodules were undergoing enlargement by malignant metamorphosis of the parenchyma cells in their immediate neighborhood, are most naturally and logically explained by assuming that here we have a case of symmetrical and independent primary growths.

It is needless to say that there has been a controversy as to this mode of extension of malignant growths by metamorphosis of neighboring cells of like origin; held by some, this theory has been vigorously denied by others. I can only say that the appearances shown in preparations are capable of no other interpretation. In the individual columns of the fasciculated zone, bordering upon the nodules of new growth, isolated cells of the series could be detected with nuclei rich in chromatin, and resembling in character those of the tumor cells, while others retained all the characters of the normal cells. Here I had to deal with a distinctly early stage of the malignant process. Death was caused by the development of sundry growths in a "vital" organ, and had occurred while the secondary

⁵ Deutsch. med. Woch., 1894.

growths were still of small size, and when none of the primary foci had attained a greater diameter than that of a small walnut, much of the cortical tissue still remaining.

The more I have thought over this case, the more it has seemed to me that here was a condition due to a biological change in the affected cells; that such modification in the properties is to be regarded as the primary factor. Leaving it open for the present, whether the active proliferation is initiated by one or another factor, this would seem evident; that for the factor to be effective the cells must be in a special state, so that whatever acts upon one organ may affect similarly its pair.

Biological change is not a new factor by any means to consider in the discussion of the origin of tumors. Ribbert, Lubarsch, Hauser, Adami and other pathologists, speak of it as an important factor, and surely it is not illogical to suppose that a condition which affects one organ in a certain way should affect another similar organ, in the same subject, in a similar way.

On such grounds as these it is easy to explain why the parenchyma of an organ is affected more readily than its stroma, or vice versa. Wells remarks that "it is a marked exception for both stroma and the epithelium to become malignant at the same time, although the reason for this is not clear."⁶ It seems to me that the difference in function and structure of the two tissues explains this condition of affairs, for it would not be expected that two such different kinds of tissue should be affected in an analogous way at the same time, except under exceptional circumstances. As in the case above, while the whole organ has the same origin (that is, from mesoderm), it is the parenchyma—the most highly and recently differentiated part, the physiologically functional part—which has undergone the primary change. And this is also what we would expect under general conditions, that is, that the more recently differentiated cells are the ones that undergo change most readily,—are the most unstable. "One great principle which we see constantly in evidence is that those structures and properties which are of oldest acquirement are those which are last to be lost; it is the most recent acquirement which tends to be the earliest to disappear."⁷ On such a supposition it might be expected that at one time a certain physiological change might determine the production of a carcinoma, at another of a sarcoma, or at still another to both carcinoma and sarcoma. So, in following the line of thought that has been laid down in Adami's papers, we can suggest theoretically the causes of the origin, not only of single primary new growths but also of multiple ones, either of one or of several types.

Such a hypothesis suggests the explanation of "system affection" more readily, perhaps, than localized changes in simple organs, but by taking into consideration local differences of environment, such as circulation, nutrition and other conditions, the application can be broadened, and the explanation of the occurrence of change in one of a pair of similar organs can be readily comprehended; why, for instance, the right adrenal seems to be more frequently affected than the left, and other cases.

In cases in which there are multiple tumors of the alimentary tract, we have a more tangible cause to offer in explanation of the primary causes. Here the inciting influence is irritation, and the changes, while they may occur at any place along the tract, are more prone to be at the points where the irritation may be supposed to be greatest,—at the orifices and at parts where stasis is apt to occur. In organs like the ovary, adrenals, kidneys and pancreas (when calculi can be excluded), and liver and other organs, such a definite factor is not at hand, and we have to adopt theories of a more indirect irritant as a factor, if we can exclude embryonic "rests" and overgrowth of connective tissue. But even in these cases when we can explain the origin of hyperplasia we have still to account for the continued growth and for the peculiar malignant manifestations. For, whether we have an embryonic misplacement or a few cells removed from their normal environment, or a papillary hypertrophy or any other form of hyperplasia, there is still the change from these to malignant growths, which implies a more fundamental change than can be explained except upon a general biological basis.

The trend of pathologists is towards some such general view as that suggested in the later theories of physiological change. Hauser⁸ speaks of "carcinomatous disposition," and Ribbert,⁹ Hauser,¹⁰ Adami¹¹ and others, embody the idea of a general biological change¹² as the cause of new growths in their remarks and in their theories. Adami¹³ states the position as follows: "While heredity surely plays an important part in determining the structure of the cell, we are forced to see that, underlying and determining heredity, the eventual structure—as again the specific functions of a cell—are determined by the sum of the forces acting upon that cell; structure and function are adaptations to environment. It is not only the nutritive material absorbed by the cell that determines the characters thereof, but its position relative to other cells in the economy. Disturb the environment of the cells, remove certain forces acting upon it so that the cell energy previously devoted to counteracting the effects of those forces may now be diverted and employed in other directions, and this unemployed energy may be utilized for growth."

Nor are multiple primary growths by any means rare. If, as I think we must, we accept the careful observations of Petersen, made by building up enlarged models of different growths from serial sections of the same, then many apparently single primary growths originate, not from one, but from several centers, and are to be regarded as truly multiple.

MULTIPLE PRIMARY BENIGN GROWTHS.

It is among benign tumors that we meet with some of the most striking examples of multiple growths. The abundant cases of multiple fibromata, fibromyomata, lipomata, enchondromata and other varieties of benign growths, illustrate this class, and the cases are so numerous and so well recognized that it is needless to attempt to collect

⁶ *Lehr. d. All. Path.*, 1901.

⁷ *Virchow's Archiv.*, cxxxviii.

⁸ *Montreal Med. Journ.*, 1896.

⁹ *Yale Med. Journ.*, 1901, p. 13.

¹⁰ *Deutsch. Arch. f. klin. Med.*, lv.

¹¹ *Tilman's Zeitschr. f. Arch. f. klin. Chir.*, l.

¹² *Journ. of Path. and Bact.*, 1901, p. 357.

¹³ Adami: *Loc. cit.*, 1902.

those recorded. The very benign nature of these growths negatives the possibility of metastatic origin. The fact that in the majority of cases we obtain multiple examples of just the one form of tumor, indicates that we are dealing with a peculiar idiosyncrasy or susceptibility on the part of one tissue to become the seat of aberrant cell growths; that, in short, we are dealing with a systemic condition. All the arguments adduced in favor of regarding the development of cancer in the other of a pair of organs as due to metastasis is that in the majority of cases the growths are not simultaneous. As in my case, the indications are that the new growth began in one at an earlier period than in the other. But now in the case of these multiple benign growths,—in which there is no question of metastasis,—we observe the same occurrence. There may at first be but one or two fibromata noticeable, and only gradually do we note the development of others in other regions. The greater rapidity of development of malignant growths and the relatively early death of those affected, tends to make more marked the difference in size between the first and subsequent primary growths, and so almost naturally leads to the assumption of the metastatic theory. But equally permissible is the view that where two or more cancerous foci present themselves in paired organs, in one widely spread tissue or in different parts of a system, these may all be primary in nature. I do not say or wish to indicate that this is true in all cases. At first reading, such a statement may seem heterodox, but a little consideration will show that there is at least as much to be urged in favor of such a view as of the time-honored conception of metastasis.

That many of these multiple benign growths are possibly to be regarded as examples of tumors derived from cell-rests is not a contradiction to what has been stated above. Cell-rests, as such, do not necessarily become the seats of tumor growths. At most, the aberrant and functionless condition of these cell-rests may render them peculiarly liable to undergo proliferation, so that tissue disturbances, inadequate to stimulate normal and functional cells to excessive proliferation, may more easily tell upon the cell-rests.

MULTIPLE PRIMARY MALIGNANT GROWTHS.

An interesting example of multiple primary growths, on the border line between the benign and malignant forms, is to be seen in the multiple myelomata—good examples of which Wright,¹⁴ MacCallum¹⁵ and others have reported.

It is, indeed, to be admitted that there is no hard and fast line to be drawn between the benign and malignant growths, and this being the case we should expect, as indeed we find, that examples of multiple primary malignant growths are far from common. I certainly must confess to some surprise at finding how many cases are upon record.

The subject has already been treated, more particularly by Walter, Nehr Korn,¹⁶ Wells¹⁷ and Warthin,¹⁸ but these observers have, in the main, been content to collect and record cases without

dwelling upon, or deducing the conclusions which may be legitimately deduced from, a study of the same. It will therefore, I think, serve a good purpose to bring together the cases that I have been able to collect in what has been, truly, not a complete review of the literature.

MULTIPLE PRIMARY CANCEROUS GROWTHS (CARCINOMATA).

- (1) *Affecting the same tissue.*
 - (a) Identical (histologically) growths:
 - Mandry:¹⁹ Epitheliomata of both thighs, at the sites of old ulcers.
 - Volkman (cited by Walter and Mandry): Epitheliomata of both thighs, at the sites of old ulcers.
 - Steinhauser:²⁰ Epitheliomata of right ala nasi, root of nose, forehead, cheek, upper lip, eyebrow, etc. (at sites of lupus ulcers). Steinhauser gives several such cases.
 - Bayla:²¹ Cancer of right cheek and temple at sites of old lupus ulcers.
 - Lubarsch:²² Carcinomata of ileum (two cases).
 - Notthafft:²³ Carcinomata of ileum.
 - (b) Growths of different types:
 - Nehr Korn: Squamous epithelioma of left temple; epithelioma over left orbit; epithelioma (without keratinization and with giant cells) behind left ear.
 - Nehr Korn: Squamous epithelioma of temple; "Matrix" cancer of temple (cells flat, polygonal and cylindrical).
 - Nehr Korn: Epithelioma (keratinization) of external ala; duct cancer of upper lip.
 - V. Bergmann (quoted by Mendelssohn): Cancer of face; epithelioma of neck.
 - Mandry: Cancer of right ear; epithelioma of left ear.
- (2) *Affecting both of a pair of organs* (not necessarily of the same histological type).
 - Royal Victoria Hospital, Autopsy 16, 1897: Bilateral malignant papilliferous cystomata of ovaries.
 - Royal Victoria Hospital, Autopsy 33, 1897: Similar to the previous case.
 - Mandry: Carcinoma simplex of right breast; alveolar carcinoma of left breast.
 - Woolley: Mesotheliomata in both adrenals (the description of the case is given above).
- (3) *Affecting different regions of the same system* (not necessarily of the same type in different areas).
 - (a) Alimentary canal:
 - Hauser: Carcino-adenomatosus simplex of rectum; medullary cancer of stomach.
 - Bucher: Cancers of colon and stomach.
 - (b) Genital system:
 - Eckhard:²⁴ Adenocarcinoma of fundus uteri; malignant cystic adenoma of cervix.
 - Hofbauer:²⁵ Squamous epithelioma of cervix; villous cancer of both tubes.
 - (c) Cutaneous system (included under the first division).
- (4) *Affecting different systems with different forms of new growth.*
 - Fränkel:²⁶ Cancer of left breast, with metastases in thyroid and liver; cancer of colon with metastases in lung, brain and thyroid.
 - Nehr Korn: Villous cancer of bladder (removed and recurred); epithelioma of anus.
 - Cordes:²⁷ Malignant adenoma of fundus uteri; epithelioma of foot.

¹⁴ Johns Hopkins Hospital Report, ix.

¹⁵ Journ. of Exper. Med., 1901, iv.

¹⁶ Münch. med. Woch., 1901.

¹⁷ Journ. of Path. and Bact., 1901.

¹⁸ Archives of Pediatrics, 1901.

¹⁹ Beitr. zur klin. Chir., v.

²⁰ Ibid., 1894.

²¹ Beitr. zur klin. Chir., 1888.

²² Virchow's Archiv., cxl.

²³ Deutsch. Arch. f. klin. Med., liv.

²⁴ Arch. f. Gynäk., lv.

²⁵ Ibid.

²⁶ Münch. med. Woch., 1901.

²⁷ Virchow's Archiv., cxlv.

V. Winlwarter: Cancer of both breasts, with metastases in axilla, liver and retroperitoneal glands; cancer of jejunum with no metastases.

Beck:²⁸ Epithelioma of "die Porto," with metastases in broad ligament; cancer of splenic flexure of colon with metastases in great omentum which showed columnar-celled growth with colloid degeneration.

Kuster (quoted by Walter): Cancer of right breast; epithelioma at right nasal angle.

Hauser: Epithelioma of right ear; cancer of pylorus.

Now let us discuss these cases briefly in the light of the introductory remarks, and with reference to the postulates of Billroth, which are as follows: (1) Each carcinoma must be shown to have a different histologic structure; (2) the origin of each of the two types must be shown to be in a different type of epithelium; (3) the primary cancer must be shown to have produced its own metastases.

I think it is not necessary that such growth should have a different structure in order that such should be considered primary. Such a statement is almost unnecessary. An epithelioma of the face and a cancer of the uterus may have nothing in common, except the common subject, and neither may have produced metastases. There are many such cases, and in them the only practical value of the first and last postulates is that they form a good basis for careful work. The second postulate is the valuable one practically, although in many cases it too is unnecessary or useless. There is no reason why two cancers may not originate in different parts of a common tissue; nay, we may say logically that there is some reason why the same tissue should produce more than one primary malignant growth as it may produce multiple benign ones. The great question is that of metastases. If it has occurred, all well and good; but if it has not, if it can be absolutely ruled out, then we have to consider the question of multiple primary growths. It is not necessary for a malignant cancer to metastasize; many of these growths do not, although it may be hard to prove this in all cases. Besides, we have the cases in which transition from normal cells to abnormal malignant ones, in which no metastases have occurred and where all the growths are in the early stages. The steps have been shown completed, and the descriptions leave no room for doubt that in a common tissue multiple malignant tumors can arise independently. In the accounts of tumors of the gastro-intestinal tract there are many examples of this gradual transition of the normal cells to the types of tumor cells and the inauguration of new growths. A case in point is that of Hauser²⁹, in which there was a cancer of the rectum with polypi of the rectum, large intestine and small intestine, most numerous in the duodenum. Apropos of this case Hauser remarks "on the almost complete passiveness of the connective tissue of the mucous layers," and also announces his conviction that "*diese Wucherungen besitzen nur in Folge der Beschaffenheit ihres Epithel eine erhöhte Disposition zu krebsiger Entartung.*" Notthafft records a similar instance of transition of the cells of growth from benign to malignant.

One group of cases is perhaps of greatest inter-

est, — those of multiple primary growths of "systems," more indirectly influenced at least by irritation changes. As an example of these cases there is that from Schatz' clinic, in which an adenocystoma of the ovary was removed from a patient, who made a good convalescence but who came back to the clinic a year later with a scirrhus tumor in a breast, and an adenocarcinoma of the uterus. This, it seems to me, speaks for a grave physiological change affecting a certain "system," and a "system" in which there is normally a marked change in the later years of life. The rule would be atrophy, and there must be some physiological reason why this natural course did not progress — why the opposite change occurred.

In the case of skin growths the question is not a simple one, for the first appearing lesion may be the origin of others through implantation; but it is noteworthy that in reference to such cases Bucher³⁰ remarks that "*durch das betreffende nocens bewirkt Hautanomalie die Bedingungen zur Entwicklungen des Krebses,*" as though normal epidermis could not furnish the conditions either for primary growths or for secondary ones. And Walter, too, mentions that an already present cancer may serve to predispose to other growths of a similar character by their mere presence and influence on the processes of the body.

Finally, it will appear from the cases quoted that there is a proneness for multiple growths to affect one tissue or one "system," which, as I have tried to show, is no more than might be expected. In many of these cases there is a tendency to proliferative changes which at once suggests not merely a local change, but a very general physiological one. For instance, in one case of Walter's there was found an adenocystoma of the ovary, cancer of the breast and cancer of the uterus. This is a good example of "system affection," and the cause of the general epithelial changes is most readily found in a physiological change. Another case is one in which there was a papillary cancer of one ovary and a papillary cystadenoma of the other — a very instructive case considering the lack of a definite line of division between malignant and benign tumors. And apropos of such cases, Walter says: "*Sieht man nur das Wesen der Krebsbildung in einer Störung der Gleichgewichts zwischen functioneller und vegetativer Zellthätigkeit (Bencke, Woodhead), so könnte man theoretische die Formel aufstellen das einer Krebsbildung in beiden Brustdrüsen dann eintreten kann wenn ziemlich gleichmässig die functioneller Fähigkeit der Zellen erlischt und damit vegetativer Spannkraft frei werden*" (page 15). And the same applies to tumors of the ovaries, adrenals and other organs.

MULTIPLE PRIMARY SARCOMATA.

(1) True sarcomata of connective tissue.

Ruyter:³¹ Hemorrhagic sarcomata of both adrenals and liver.

Martin:³² Sarcomata of cervix uteri, ovaries, tubes, skin, stomach, spleen, kidneys, liver, lungs and adrenals, with purpura hemorrhagica.

Schonenberger:³³ Multiple small round-celled

²⁸ Prag. klin. Woch., 1883.

²⁹ Deutsche. Arch. f. klin. Med., iv.

³⁰ Quoted from Walter.

³¹ Langenbeck's Archiv., xl.

³² Journ. of Med. Research, 1901, vi.

³³ Virchow's Archiv., clxv.

sarcomata with osteomalacia and multiple fractures.

(2) *Transitional lepidomata (mesotheliomata).*

Sarcomata of the genito-urinary tract, of which types are the tumors reported by Jores and by me, and which are referred to in the early part of this paper.

(3) *Mixed types of sarcomata.*

Royal Victoria Hospital, Autopsy 42, 1897: Angiosarcoma of brain; endothelioma of pleura; endothelioma of Glisson's capsule.

MULTIPLE MALIGNANT GROWTHS OF MORE THAN ONE TYPE.

Schiller:³⁴ Sarcoma of the epiglottis; epithelioma of the tongue; sarcoma of right cervical glands; epithelioma in left cervical glands.

Nehrkorn: Cancer of breast; sarcoma of vagina. Czerny:³⁵ Cancer of one breast; angiosarcoma of the other breast.

Blackburn:³⁶ Endothelioma of dura; glandular cancer of stomach; round-celled sarcoma of testis.

Walter: Cancer of pancreas; angiosarcoma of liver.

MULTIPLE GROWTHS, IN PART MALIGNANT, IN PART BENIGN.

(1) *Cases in which the malignancy is a further step in development from the benign growths.*

Walter: Papillary cancer of one ovary; papillary cystadenoma of the other ovary. (?)

Lubarsch:³⁷ Polypi of large and small intestines, some showing a typical epithelial growth, with small-celled infiltration and solid epithelial bands.

Hauser:³⁸ Cancer of sigmoid; polypi of large intestine. In this the smallest nodules showed outspoken glandular hypertrophy and characteristic epithelial growth, with inflammatory changes in the connective tissue.

Hauser:³⁹ Cancer of rectum; polypi of rectum, large intestine, colon and small intestine.

(2) *Cases in which malignant growths occur with benign ones, no developmental relation existing between the two.*

Nehrkorn: Scirrhus cancer of the breast; adenocarcinoma of the uterus; chronic interstitial mastitis; myoma of the uterus.

Hansemann:⁴⁰ Cancer of the stomach; glioma-cerebri.

Lubarsch: Polypi of stomach; cystic adenomata of stomach; cancer of stomach (occurring in a polypus); bilateral ovarian tumors; metastases from stomach growth.

Walter: Adenocystoma of ovary; scirrhus of breast; adenocarcinoma of uterus.

Walter: Angiosarcoma of stomach; sarcoma of gall bladder; aberrant adrenal tumor; lipoma of kidney; enchondroma of right pleura.

Niebergall:⁴¹ Carcinoma of uterus; sarcoma of uterus; submucous myoma; polypus of uterus.

These last groups of cases suggest more than any others the systemic relationship of tumors and tissues, and also emphasize, as nothing else can, the logic of Adami's theory. Especially in

the cases of carcinomata, the inactivity of the connective tissue is evident from the lack of mention in some cases and from the mention in others; for instance, in Hauser's case. The noticeable features in the early stages of cancer formation from normal cells, is the increased size of the cells, the increased amount of chromatin in the nuclei, and the increased reproductive activity. That this represents a step backward, genetically speaking, I have no doubt; it does not mean the acquisition of new functions, but the regaining of old ones, preceded and accompanied by the loss of the more recently developed ones—the loss of special physiological functions with retention and accentuation of vegetative ones. Causes of such changes must be general, physiological, constitutional causes, and what could be more reasonable than to expect that, if, under changed physiological conditions, we find a tumor growing in a certain tissue, we may expect to find others developing in other parts of the same tissue.

In all this discussion I do not want it understood that I wish to belittle the conception of metastasis—at most I simply wish to limit it. No one doubts that metastasis occurs; the paths of metastasis can be followed, sometimes without a microscope. When tumors grow into channels in which blood or lymph flow, a few cells may be carried away, or the growth may occur along these channels as in the direction of least resistance. But when metastasis has not occurred then we are to look at the case from the purely physiological side to find the reason for the multiple growths. Finally, I doubt not that metastasis may occur, and yet, other like tumors, arise independently of this factor.

I believe that there is such a thing as a general "neoplastic-tissue disposition," as one author expresses it, that tumors are the result of some constitutional change. But what is the cause of the disposition? Is it vital or is it a direct result of some extraneous agency? We speak of a "cancer age." Do the changes of age predispose to atrophy in some persons, to hypertrophy in others? We think that the normal tendency is to atrophy. Some investigators believe that infection is at the bottom of the thing—not so much, perhaps, as the result of the immediate presence of the organisms as of their secretions. Esmarch expresses the possibility that syphilis, the great cause of connective tissue changes, may be the mediate cause of sarcoma. This is certainly a more logical way of looking at the infectious origin of tumors. Toxins or secretions of whatever kind, if circulating widely in the body, might well be the cause of changes that would favor an increase in vegetative functions just as they may, if concentrated, cause an opposite effect; and, "whatever the origin, therefore, of the tumor proper, however it is started, what makes the tumor is the assumption by the primary cells of that tumor of the habit of growth in place of the habit of work, and according to the extent of this replacement so do we get the various grades of tumor formation from the most benign to the most malignant," which may be paraphrased as follows: "In the benign tumors the specific acquired function of the cells is overbalanced by the embryonic one; in the malignant tumors it is lost."

³⁴ Berlin. klin. Woch. 1896.

³⁵ Quoted by Nehrkorn.

³⁶ Quoted by Beutles.

³⁷ Virchow's Archiv., cxi.

³⁸ Ueber den Cylinderepithelkrebs des Magens und Dickdarms.

³⁹ Deutsch. Arch. f. klin. Med., iv.

⁴⁰ Die mikroskopische Diagnostik, Berlin, 1897.

⁴¹ Arch. f. Gynäk., l.

It may be said that the facts of greatest importance are those which embrace the primary causes of tumor formation. In the ultimate explanation of tumors this may be so; but these facts are legion, whereas, in the practical sense as the basis of prophylaxis and treatment, we may have one great generalization from which to work. From the basis of this generalization we may say that the prophylactic and therapeutic measures against new growth will be those which tend to a normal physiological life, which, to be sure, is the natural treatment of all diseases, but also, as in the treatment of other diseases, we must have recourse to active measures, too; surgical means are not to be neglected. The methods of serumtherapy are beginning to throw light into the murky atmosphere of this province, and the work of the Ehrlich school is most suggestive in this connection.

There is no reason to suppose that body cells cannot be influenced at least as easily as the cells of lower organisms and as easily as the bacteria. "The statement which has been made of bacteria seems to apply equally well to other cells. The more intense the alteration, the longer it is before there is a sign of return to normal."⁴² The change can be accomplished, however, and this is a very significant point to be noted in the treatment of such cellular disorders as the tumors. Bacteria lose their normal characters when their normal environment is disturbed; body cells do the same. In gaining normal characters, the reverse is true—at least for the bacteria.

In conclusion, I would beg observers to watch for cases of multiple primary growths, and record with them careful studies of the general conditions, as well as of the special ones surrounding the patients. Such records in cases of tumors in paired organs, such as the breasts, adrenals, ovaries, etc., would be of the greatest interest and value, in determining whether metastasis or biological change is the more obvious factor in the production of such cases.

I must express my deepest gratitude to Dr. Adami for his sympathy and graciousness and readiness to assist me in my work. The value of his example, the clearness of his teaching, and the charm of his personality have been, and always will be, inspiring to me.

PERCENTAGE MODIFICATION OF MILK IN INFANT FEEDING.

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MANY methods and formulæ for the modification of cow's milk to meet the requirements of infant feeding have been devised, in the effort to develop a system, for use at home, which is simple, practical and approximately accurate. All such methods have many points in common, and none can lay claim to strict originality. The writer fully appreciates that the method advocated in this paper is based upon previously established principles, but believes it will be found useful to those who are called upon to feed artificially a considerable number of infants.

⁴² Adami, *Montreal Medical Journal*. Theories of Inheritance. 1901.

The essential principle underlying the American system of infant feeding, now generally accepted by pediatricists, is that it is not an intolerance for cow's milk as such which causes so much disturbance in infants, but the inability of the individual child to digest certain ingredients of milk. In other words, there is a variable ability on the part of the infant to digest the fats, sugar and proteids of cow's milk, producing what may be spoken of as fat indigestion, sugar indigestion and proteid indigestion. Any one or all of these three elements may be responsible for the gastro-enteric symptoms in an individual child, even when the purity of the milk, which is of the first importance, is assured. The proportion of fats, sugar and proteids tolerated by the one infant may cause serious disturbance in the case of another infant of the same age, either because of the idiosyncrasy of the patient, or because of some pathological condition from which it is suffering. Obviously, an ideal system of substitute feeding must provide means by which, starting with as perfect a milk supply as is possible, the physician may provide percentages of fats, sugar and proteids in any desired combinations within reasonable limits of error. In this respect the milk laboratories furnish, in experienced hands, a very satisfactory method, and by all means the best which has yet been established, assuming that women's milk of good quality cannot be obtained. It is desirable, however, where laboratories cannot be utilized, to apply its principles as closely as possible to home modification. It is of especial importance that students graduating from our medical schools should be instructed in some method by which they may fully understand the principles of percentage feeding and apply them to the infants they will inevitably be obliged to feed artificially in practice. It is in the effort to present these principles in a simple and practical form, in order that intelligent percentage feeding may be more generally adopted, that this paper is written.

The fact that some infants will thrive on methods entirely at variance with scientific ideas does not in any way disprove the theories nor discredit the practice of the advocates of scientific percentage feeding. Infants differ as greatly, if not more, than adults in their peculiarities of digestion. One infant may be fed on condensed milk and bovine from the day of its birth until it is eighteen months old, as was seen in a case which came under the writer's observation this summer, and still showed an apparently perfect state of physical development and nutrition. Another infant, however, in the same family perhaps, will, on the same food, develop all grades of nutritional disturbance, from slight intestinal indigestion to the grave lesions of atrophy, scorbutus or rachitis. With those infants who thrive on any diet, the physician, as a rule, has little to do. He is brought face to face with those who, for a varying number of weeks or months, have been tried on the whole series of prepared foods, or on simple mixtures of milk and water, or on inappropriate modifications of creams. If any one questions such a condition of affairs, he need only follow for a few weeks the varying fortunes of an infants' clinic at some large hospital to be convinced of the accuracy of these statements, if his own experience in private practice has not already

given evidence of it. The futility of these cheap and ready methods of feeding, in these cases at least, has already been demonstrated, and the successful management of them must, in the great majority of cases, depend upon the intelligent adaptation to the individual infant of fresh cow's milk obtained from the best possible sources.

An objection which has frequently been raised to percentage feeding is that the breast-fed infant receives a milk which undoubtedly may vary greatly from feeding to feeding both in quantity and quality, and that the effort to give a modified milk with definite percentage combinations and definite amounts is contrary to nature and unnecessary. The facts on which the objection is based do not, however, justify the conclusion drawn. The normal mammary gland, with its delicate mechanism by which, by the aid of the nursing infant, it adapts itself to the individual, is a very different apparatus from the nursing bottle. We may know much of the varying qualities of single specimens of milk withdrawn from the breast, but the percentages as determined by analysis may be, and undoubtedly are, in many cases, decidedly altered by the time the milk is lodged in the infant's stomach at the end of the nursing period, owing to the great variations in the quality of milk during the nursing period and also to the varying quantity which the infant receives. We find, therefore, that in artificial feeding the average analysis of breast milk is but little aid to us in the adaptation of a modified cow's milk to the individual infant. Each case is a problem in itself, and its appropriate food cannot be accurately predetermined on general principles. A full understanding of these principles enables us to make a beginning with the least possible danger to the child, but it is only by close observation of the effects produced and the adaptations of the food to meet the indications which arise, which enables us to produce the best results.

If then we assume that it is desirable to feed an infant according to percentage combinations, some system must be employed by which the physician may calculate these combinations quickly and easily.

The only objection to the use of formulæ is the time required to figure out the combinations and the difficulty with which some minds grapple with anything involving even moderately complicated mathematics. It will often be found when the figuring is completed that the desired combination is impossible with the strength of cream used. We may, for instance, calculate for a prescription calling for 4% fat, 6% sugar, and 0.60% proteids. If we figure on the basis of using a 10% cream, we find the combination impossible, for the lowest proteid that can be obtained from a 10% cream with 4% fat in the mixture is 1.34%. We next try a 12% cream and find the lowest proteid possible is 1.08%. Again we calculate with a 16% cream, and find the lowest proteid is 0.80%. Finally we try a 20% cream, and find at last that it will yield both the fat and proteid percentage desired. All this obviously involves a great waste of time. It is desirable to have a system by which it will be evident at a glance what are the combinations possible with a cream of given strength.

The following table may be given to illustrate the

limitations in the percentage of proteids dependent upon the use of creams of different strength:

10% Cream gives with			
Fat 1%	lowest possible	proteids of	0.38
" 2%	"	"	0.67
" 3%	"	"	1.00
" 4%	"	"	1.34
12% Cream gives with			
Fat 1%	lowest possible	proteids of	0.27
" 2%	"	"	0.54
" 3%	"	"	0.82
" 4%	"	"	1.08
16% Cream gives with			
Fat 1%	lowest possible	proteids of	0.20
" 2%	"	"	0.40
" 3%	"	"	0.60
" 4%	"	"	0.80
20% Cream gives with			
Fat 1%	lowest possible	proteids of	0.15
" 2%	"	"	0.31
" 3%	"	"	0.46
" 4%	"	"	0.62

It is obvious from the above table that in simple dilutions of creams we are limited in our proteid percentages. To obtain low proteids with high percentages of fat in a mixture, concentrated creams must be used. To obtain high proteid percentages simple dilutions of cream will not suffice, but whole milk or fat-free milk must be added to supplement the deficiency of proteids resulting from the dilution of the cream.

The use of whey as a diluent in place of water, first advocated by Monti, has of late come into prominence and has been given a sufficient trial to warrant the opinion that its use in cases of very difficult digestion, where only low percentages of caseinogen are tolerated, is often of great value. It allows the physician to give a higher total proteid than would otherwise be possible. It is one of several resources which the physician should be prepared to use when satisfactory results are not obtained by the usual methods. These whey-cream mixtures can now be obtained at any of the milk laboratories, and has in the present scheme been made practicable in home modification.

As any system relating to the modification of milk must take into consideration the composition of the ingredients used, some standard analysis must be adopted. Any formulæ or table such as given below presupposes the acceptance of such a standard. Owing to the great variation in the quality of milk, exception may be taken to any standard suggested. The analyses which are given below are on the basis that the milk used contains 4% of fat, 4.50% of sugar and 3.50% of proteids. These figures are based on the analyses of Adriance and others, and are accepted by Rotch and Holt as a fair average.

The composition of the different materials used in the modification of milk is therefore assumed to be approximately as follows:

	Fat, %	Sugar, %	Proteids, %
Fat-free milk	Trace	4.60	3.60
Whey	Trace	4.79	1.00
Whole Milk	4.00	4.50	3.50
8% Cream	8.00	4.40	3.40
10% Cream	10.00	4.30	3.35
12% Cream	12.00	4.20	3.30
16% Cream	16.00	4.05	3.20
20% Cream	20.00	3.90	3.10

the water, and the total whey proteid percentage calculated by taking one fifth of proteids obtained from the cream and from the fat-free milk and adding to it the percentage obtained from the whey. For instance, in the example given above under "Whey Cream Mixtures," the total proteids percentage obtained from the cream is 0.60, one fifth of which (0.12%) is whey proteids and four fifths (0.48%) caseinogen; the whey added 0.70% of whey proteids, so that the proteid percentage in the final mixture consists of

Whey proteids.....0.12 + 0.70, or 0.82
Caseinogen 0.48

The percentages of lime water in the table are all estimated at 5%, requiring one ounce of lime water to each twenty ounces of the mixture. Higher percentages of alkalinity can be easily obtained; for instance, for a 10% alkalinity use two ounces of lime water and one ounce less of boiled water; for 15% alkalinity use three ounces of lime water and two ounces less of boiled water.

Cereal solutions can be added in place of the boiled water in any combination without altering the percentage of fats and proteids, and the percentage of starch thus added may be accurately determined if the strength of the cereal solution is known.

For instance, if fourteen ounces of a 1% solution of barley water is added in place of the boiled water to a twenty-ounce mixture, the percentage of starch in the mixture is:

$$\frac{14 \times 1}{20} = 0.70\% \text{ starch.}$$

The table giving the rules for feeding is self-explanatory. It is taken from Rotch's "Pediatrics," 1901. As a matter of convenience to the physician, this table and one giving the formulæ on which the average healthy baby may be started are more for the benefit of the medical student than for the experienced practitioner, for each individual infant is a study by itself and varies greatly in its gastric capacity and in the strength of the food it can digest. It is not the purpose of this paper, however, to discuss the therapeutics of infant feeding, but merely to present a plan by which the working materials may be obtained.

An example may illustrate the facility with which a milk modification may be calculated by means of the above table.

It is desired to give a baby of seven months six feedings of six and one-half ounces in the course of twenty-four hours, the prescription calling for,—

Fat	4.00 %	(to be obtained with 10% cream)
Sugar	7.00 %	
Proteids	2.00 %	
Alkalinity	5.00 %	

that is, 39 ounces of Formula 26 is required; the calculation is made as a matter of convenience for 40 ounces. The process is as follows:

Of 10% cream use	(8 × 2)	16 ounces.
Of fat-free milk	(3½ × 2)	7 ounces.
Of lime water	(1 × 2)	2 ounces.
Of boiled water	(7½ × 2)	15 ounces.
Of dry lactose	(2¼ × 2)	4½ measures.

The mother is then instructed where to buy the 10% cream and fat-free milk, or how to get both

by setting the milk as described above. She is told to add the dry sugar to a portion of the water and then to add sufficient water to make fifteen ounces. The resulting mixture is then divided into six tubes, each containing six and one-half ounces, and these are heated or not as the physician requires.

It may be desirable to prescribe a different percentage of sugar in the above mixtures than given in the table, for instance, in the above example, 6 instead of 7%. This is easily calculated by referring to the last column of the table, which gives the percentage of sugar contributed by the cream and fat-free milk, which is seen to be about 2.50%; the desired amount is 6%, therefore dry sugar must be added to the extent of 3.50%, which, by referring to the table marked "Whey Cream Mixtures," is seen to require 1½ measures for a 20-ounce mixture or 3½ measures for a 40-ounce mixture.

There is a very slight error in the calculation of the sugar percentage which arises from the assumption (made for the sake of simplifying the card) that the percentage of sugar in a mixture of cream and fat-free milk is the same as that in whole milk.

The calculations are based on the use of fat-free milk instead of whole milk for a double reason,—first, as it simplifies the system greatly, inasmuch as the fat percentage of the whole milk can be discarded, and, secondly, because of economy in the preparation of the modification. Milk is now delivered in quart or pint jars. The cream must be removed as described above. If whole milk were added to obtain the higher proteid percentages, an extra pint or quart of milk must be bought in addition to that required for obtaining the cream, and this involves an unnecessary expenditure, for the fat-free milk is all that is required and is easily obtained. The writer much prefers the use of the siphon, with a clamp and a piece of rubber tubing at the lower end to the various dippers devised for removing the cream from the top.

FOOT-AND-MOUTH DISEASE.

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FOOT-AND-MOUTH disease or epizootic aphtha is an acute, infectious, exanthematous disease, peculiar to cloven-footed animals, both wild and domestic. Although cattle, sheep and swine are more readily attacked, scarcely an outbreak occurs that the disease is not met with in other animals, such as horses, dogs, cats, occasionally poultry and sometimes man. It is the most contagious disease known among animals, and is transmitted from beast to beast as surely and as mysteriously as smallpox is conveyed from person to person. Unlike smallpox, however, foot-and-mouth disease is not so much dreaded on account of its mortality, which is very low, as it is because of the immense financial losses involved. This is better understood when it is realized that to successfully combat the disease the very strictest quarantine measures must be enforced. It is not sufficient to quarantine the sick animals alone, all their products must also be quarantined, from milk to manure. The greatest care must be taken that persons attending or even visiting sick animals do

not spread the disease. Add to this that private and public sales of animals must be prohibited, and all transportation of the same forbidden, and it is easy to realize that an outbreak may readily cost a dairyman his profits for an entire year or more, and that tradesmen, marketmen and transportation companies all join to swell the total financial loss, which may reach far into the millions.

HISTORY.

Epizootic aphtha has been known for several centuries, possibly for 2,000 years. Its home seems to have been Western Asia and Eastern Europe. But as civilization advanced and means of communication between nations became easier, the disease soon spread over Western Europe, where it has remained ever since, costing Germany, for instance, many millions of marks, annually. It reached England in some unknown way in 1839, and remained there with occasional interruptions till 1894. From 1885 till 1892 there was no foot-and-mouth disease in England, probably due to the fact that the importation of animals from infected countries was prohibited in 1884. Yet in spite of this it appeared again from Denmark in 1892, when isolation of deceased animals and strict quarantine again eradicated it in 1894. Since then I am told that there has been another slight outbreak, but I have seen no official record of it.

Foot-and-mouth disease reached this country through Canada in 1870, being brought there by two short-horn cows, imported from Liverpool. It soon appeared in some localities of New York State and in parts of New England, but seems not to have assumed a very virulent form, at least, it soon disappeared. In 1884 it was again brought to this country by some cattle imported from England to Portland, Me., and taken at once to the United States quarantine station. Some cattle passing over the same road shortly afterwards became infected, and the disease spread to a few herds in the neighborhood. It was soon suppressed, however, and since then we have had no foot-and-mouth disease in the United States until the present outbreak. How it entered is still unknown, possibly by means of infected fodder.

SYMPTOMS.

Cattle.—Generally from two to five days after exposure, sometimes as early as twenty-four hours and yet occasionally not for ten days, the animal shows dullness, lack of appetite, perhaps rumination is more or less disturbed and there is increased salivation. At this time the temperature may reach 107° F., and the mucous membrane of the mouth is seen to be somewhat reddened. In a few days, sometimes in only twenty-four hours, vesicles appear. These may be seen upon the muzzle, but they usually occur inside the lips and cheeks, upon the tongue, gums, or, in fact, in any part of the mouth. They vary in size from a pin's head to one-half inch or more in diameter. They are filled with a clear though sometimes slightly cloudy amber colored fluid, which lies immediately beneath the epithelium, the latter being simply elevated from the underlying tissue by the pressure of the fluid. This lymph contains the virus of the disease, and until the vesicles

burst the saliva is non-infectious. After rupture of the vesicles the epithelium soon strips off, leaving larger or smaller raw areas, erosions or shallow ulcers. The mouth is now exceedingly sensitive, it is very painful for the animal to eat, salivation becomes profuse and a peculiar smacking sound may be made with the lips. If complications do not arise, recovery rapidly takes place and is complete in from two to three weeks. The epithelium grows again, leaving no cicatrix, though sometimes a shallow depression remains.

When the feet are also involved the animal shows great uneasiness, constantly moving the legs and often kicking. The vesicles appear between the bifurcations of the hoof and at the coronet where the hair and the hoof meet, and also sometimes higher up on the leg. The feet may become so painful that pastured animals cannot walk about in quest of food, and housed animals prefer the recumbent position.

Not infrequently vesicles appear upon the teats and udder, and from here spread along the belly. This is more often observed in milch cows, the infection easily occurring through the hands of the milker. The milk from such animals is highly infectious. After rupture of the vesicles, shallow and painful-looking ulcers remain which quickly heal.

Other symptoms may be present, such as gastrointestinal disturbances, and occasionally bronchopneumonia from inhalation of saliva, particles of food, or shed epithelium.

The postmortem findings may vary through a wide range. There may be inflammation of the stomach and intestines with, perhaps, vesicles or shallow ulcers. Similar lesions may be found in the larynx, pharynx, trachea and bronchi, and perhaps aspiration pneumonia is present. There may be infarcts in the heart muscles and parenchymatous changes in the liver, kidneys and spleen.

Symptoms in other animals.—The lesions in sheep, goats and pigs are practically the same as those described above, though vesicles are more apt to occur upon the feet. Large vesicles are sometimes seen upon the snouts of pigs. In birds the eruptions appear in the mouth and upon the feet, legs and comb.

Man.—The disease has often been observed in man, especially where exposure has been great; for example, persons caring for sick animals, inmates of a cloister constantly drinking infected milk, in children feeding upon raw milk from diseased cows, etc. In 1834 Hertwig and two friends experimented upon themselves by drinking milk from a cow affected with foot-and-mouth disease. On the second day rather severe constitutional symptoms appeared, with fever, headache, nausea and ptialism, and soon thereafter eruptions in the mouth and upon the cheeks. Hertwig seems to have suffered more acutely than his companions, but the experiment was eminently successful. In 1890 a student in the Berlin Veterinary School appeared one day with vesicles upon his face and in his mouth. Investigation showed that his father had foot-and-mouth disease at his farm. Being prohibited from sending his dairy product to the market, he had generously sent his son a quantity of fine, fresh butter, which the youth, if we may

judge from the results, had thoroughly appreciated. Instances have been recorded in man where the vesicles were not confined to the mouth and face or to the fingers, as is more especially the case with milkers, but have extended over the neck, chest and arms. Vesicles of foot-and-mouth disease on cattle have been mistaken for cowpox, and the lymph used for vaccination, with unfortunate results. The disease is seldom fatal in man, except in the case of children, though Hulin reports a mortality of 23 out of 1,000 inhabitants of a small village.

TREATMENT.

The mortality in foot-and-mouth disease is so low, only 1 to 5 %, except in very young animals, where it reaches 50 to 80%, complete recovery generally taking place in from two to three weeks, that no treatment is necessary other than good care and prevention of complications. These are often very severe through secondary infection of the lesions after rupture of the vesicles. Borax and alum washes are used in the mouth, clean, dry bedding and antiseptic washes and dressings for the feet.

ETIOLOGY.

Although the cause of foot-and-mouth disease is assumed to be a bacterium, and in spite of the fact that the cause has been ascribed by a number of writers to some special organism, the true nature of the contagion still remains unknown. Many bacteriologists have sought to solve the problem, and some of the best-known and best-equipped investigators have constantly been at work on the subject for years. Such, for example, is Loeffler, who has for the past few years been the head of a commission in Prussia especially established for the study of this disease. Another such commission was founded in Saxony, with Hecker in charge. Though these men have failed as yet to find the cause of foot-and-mouth disease, they have brought to light many interesting facts which must materially lessen the still difficult problem for other investigators.

In the first place experiments cannot be made upon our usual laboratory animals, such as guinea pigs and rabbits, since they react most uncertainly to inoculation with this disease. The virus exists, perhaps uncontaminated, in the lymph within the vesicles and before the vesicles appear in the blood. It is easily destroyed by heat, a temperature of 80° C. sufficing (Pasteurization therefore renders the milk harmless). It is not, however, easily killed by cold. Hecker has preserved the virulence in artificially infected straw for nearly two months. In closely packed manure he claims that the virus is destroyed by the heat there generated, and by the presence of other bacteria, in a week. He believes that he has demonstrated that the infectious material is not carried by moist or dry air. He has succeeded in inoculating animals in many different ways; for example, by injecting the virus into the stomach, intestines, rectum, mammæ, trachea, by placing it upon mucous membrane of the nose, mouth and eyelids. He failed, however, to produce the disease by rubbing the virus upon the healthy skin, or by tying infected cotton pads on the clefts of the feet.

Flies; two hours after eating infected material, did not cause the disease when ingested by cattle; on the contrary, after laying them directly in the virus they did. The contaminated feathers of pigeons twelve hours after picking up food among infected chaff were fed to cows — and the disease was thus produced; hence Hecker concludes that birds may carry infection, and in this manner the sudden appearance of the disease at localities remote from infected regions may be explained.

The virus passes through the finest porcelain filters, so fine that they hold back the smallest known bacterium. Thus, by filtration of the lymph, it is assumed that a perfectly pure virus can be obtained; yet microscopic examination of the filtrate reveals nothing, and all known methods of cultivation with such virus have yielded no positive results. Hecker has inoculated collodium capsules filled with various media with the virus and then placed them in the bodies of susceptible animals. In some instances, the medium became slightly turbid after five days, but nothing was visible microscopically save minute refractive bodies, similar, says Hecker, to those described by Nocard as the cause of contagious pleuropneumonia of cattle. With the contents of such a capsule he once succeeded in infecting an animal. He wisely concludes that such changes in the medium were not necessarily induced by the presence of the cause of foot-and-mouth-disease.

IMMUNITY.

One of the chief objects of these commissions in Germany was to discover, if possible, an immunizing serum, a problem beset on all sides with astonishing difficulties. At the very outset we are met by the fact that the natural disease leaves an immunity of most uncertain duration. This may last at longest for a year, but generally for only a few months or even weeks. It has been repeatedly observed that a cow may have the natural disease two or even three times in the course of a single year. Another difficulty is that, laboratory animals not being available, other means must be found for testing the virulence of the virus, which it was found readily decreased by passing four or five times through adults; it also loses its strength if kept for any length of time in the ice chest. Notwithstanding these and many other barriers, Loeffler has persisted untiringly. He found that the strength of the virus increased if passed through a hog. He therefore at first artificially maintained a maximum virus by inoculating from cow to pig, and pig to cow, in rotation. Later he found that it could be kept permanently at a high standard of virulence by passing from farrow to farrow. Yet even in these animals it occasionally becomes weakened and at other times so intensified that $\frac{1}{50}$ to $\frac{1}{1000}$ cubic centimeter kills the animals before vesicles have appeared. But these vesicles are of the greatest importance, for the lymph within contains the strongest virus, and the strongest is what is most desired. Moreover, up to 100 cubic centimeters of this lymph must be used before an immunizing serum is obtained, and not much lymph can be drawn from a single vesicle.

If a small quantity of this serum is added to virulent lymph, and this mixture injected into the blood of a cow, no disease results; but the animal

is not immune, for if brought in contact with diseased animals it also becomes diseased. Loeffler finds that it takes 240 cubic centimeters of the best serum to protect a 600-kilogram cow against the natural disease. Even this is not always successful, and when it is, immunity only lasts for fourteen days and is not lengthened by larger doses. Such immunity is no equivalent for the cost of making so much serum, especially as at the end of fourteen days the animal must be protected again in order to carry it beyond the probability of infection with the natural disease. This method has therefore been declared impracticable for cattle, and other means of protection are being sought, a number of which have been tested on more than 3,000 cows. But, as yet, Loeffler feels that nothing can be recommended.

With *sheep* and *swine* better results have been obtained. Only 5 to 20 cubic centimeters of serum (according to size of animal) is necessary to grant them an immunity which lasts three to four weeks. In practice this method has succeeded in several instances in limiting the disease to a few animals only of a herd; for these animals, therefore, it may be a useful agent to employ until some better method is discovered.

LITERATURE.

- Proceedings of the Seventh International Veterinary Congress, Baden-Baden, 1899.
Hecker, *Ibid.* Vol. II.
Hecker, *Untersuchung zur Bekämpfung der Maul- und Klauenseuche.* Berl. Thierärztl. Woch., 1899.
Loeffler and Frosch. Bericht der Kommission zur Erforschung der Maul- und Klauenseuche, etc., Centr. f. Bk., I Abt., xxiii, 1898.
Loeffler, *iv.* Bericht der Kom., etc. *Ibid.*
Loeffler, *Ibid.*, I Abt., 39, 1901, p. 701.
Loeffler and Uhlenhuth. *Ibid.*, p. 19.
Friedberger and Fröhner. Lehrbuch d. spez. Path. und Ther. der Haustiere.
Kitt. Path. Anat. der Haustiere.
Joest. Unbekannte Infektionsstoffe. Centr. f. Bk. I Abt. xxxi, 1902, p. 361.

CHLORIDE OF ETHYL AS A GENERAL ANESTHETIC.

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CHLORIDE of ethyl (C_2H_5Cl) is a colorless liquid, with quite a strong aromatic odor and a sweetish taste resembling that of chloroform. Its density is 0.874 at $+5^\circ C.$ (Thénard), and 0.920 at $0^\circ C.$ (Pierce). The density of its vapor is 2.219. It boils at $10^\circ C.$, and consequently evaporates very rapidly at the ordinary atmospheric temperature, and must be preserved in hermetically sealed receptacles. It is extremely combustible, and burns with a flame bordered by green, and produces hydrochloric acid.

It is formed in several manners: Firstly, by the action of hydrochloric acid on alcohol ($C_2H_5OH + HCl = C_2H_5Cl + H_2O$). Secondly, by the action of perchloride of phosphorus on alcohol ($C_2H_5OH + PCl_5 = HCl + PCl_4OC_2H_5$). Thirdly, from the action of a large number of chlorides on alcohol, and under these circumstances the chloride of ethyl is always mixed with the oxide of ethyl. Fourthly, by the action of chlorine on the iodide of ethyl, in which case there is simply a displacement of the iodine by the chlorine. Fifthly, by the action of hydrochloric acid on the acetate of ethyl, acetic acid becoming free. And, sixthly, by the action of chlorine on the hydrate of ethyl.

Chlorine has no action on chloride of ethyl in

darkness, and in diffused light only acts on it very slowly. If the operation is begun in the sunlight and continued in diffused light and ended again in sunlight, the following series of products are obtained, namely: Chlorinated chloride of ethyl ($C_2H_4Cl_2$), bichlorinated chloride of ethyl ($C_2H_3Cl_3$), trichlorinated chloride of ethyl ($C_2H_2Cl_4$), quadrichlorinated chloride of ethyl (C_2HCl_5) and, finally, perchlorinated chloride of ethyl (C_2Cl_6) results.

These chlorine derivatives of the chloride of ethyl have been proposed as anesthetics, and in 1848 Nunnely tried the chlorinated chloride of ethyl as a general anesthetic. It was again employed by Langenbeck, in 1870, and about ten years later it was used by Newman, Hodges and Reichert. These authorities mentioned the rapidity with which narcosis was obtained, the almost immediate return to consciousness, and the less disagreeable effects than those noticed after the use of chloroform. They also remarked that the circulation was far less depressed. Out of a total of 1,867 cases, Newman had only one death from syncope, and autopsy showed a dilated heart with fatty degeneration. Reichert believes that this anesthetic has a direct depressing action on the heart, which is still manifest after section of the pneumogastric nerve.

The isomers of chlorinated chloride of ethyl, the chloride of ethylene, the chloride of ethylidene have been employed by Kocher, Soulier and Brian. Two cases of death from these agents have been reported.

After experimental work on animals, Dubois and Panas demonstrated the bad effects of chlorinated chloride of ethyl on the cornea. Several hours after the animal had regained consciousness, an opacity of the cornea was found, occurring after the elimination of the anesthetic, and was due to a serous infiltration of the parenchyma of Descemet's membrane. The œdema of the cornea, they say, is due to the destruction of this membrane, which alone protects the cornea against invasion from the vitreous humor. This opacity finally disappears, the process beginning at the periphery towards the center, and is often accompanied by hyperæmia of the conjunctiva and photophobia. It has been thought advisable to mention these experiments in order to show the difference existing between chlorinated chloride of ethyl and chloride of ethyl, because during the elimination of the latter product there is complete absence of any disturbance of the eye.

Wood and Cerna came to the following results in their experiments with chloride of ethyl on the rabbit: An increase in the respiratory movements and a decrease in the arterial pressure during narcosis, with an immediate return to the normal state as soon as the anesthetic was stopped. In the first place, the pulsations diminish in frequency and then become increased until the end of the experiment.

Ruegg of Basle found that there was a dilatation of the blood vessels in the dog when the animal was submitted to the inhalation of diluted vapors of the chloride of ethyl, but when they were given in a concentrated form the heart beats became more frequent and the blood vessels contracted.

The experiments of Koenig were carried on with dogs, rabbits and monkeys. The rapidity with which narcosis is obtained depends on the amount of dilution of chloride of ethyl with air. A mixture of one part of the anesthetic and ten parts of air produces narcosis in from six to seven minutes; in equal parts narcosis is complete in a few seconds and lasts for several minutes without renewing the anesthetic. In rabbits the phenomena of motor excitability during anesthesia were more pronounced than in other animals. Rhythmical convulsions, marked movements of deglutition, nystagmus, exophthalmia and frequently abundant salivation were observed. The respiration was also accelerated. In dogs there was a slight decrease in the arterial pressure, and in one experiment there was a decrease and irregularity in the heart beats which increased or diminished with the amount of dilution or concentration of the anesthetic; but all these symptoms disappeared after the pneumogastrics were cut.

When chloride of ethyl was used without dilution with air, the arterial pressure became lowered in a regular fashion quite rapidly and becoming more and more accentuated until respiration and heart beats ceased altogether.

In the monkey the narcosis was very calm, and a depression of arterial tension was noted, due to excitation of the pneumogastric of central origin, since it disappeared after the vagus had been cut. After section the arterial pressure increased and remained normal until the end of the experiment. Koenig also noted that the pneumogastric nerves did not respond to irritation when the narcosis was complete, and no matter how many times the anesthetic was given in short intervals to the same animal the return of consciousness and reflex action were always rapid.

Koenig's experiments on the arterial depression are quite in accord with the results published by Malherbe and Roubinovich, which were observed in man by means of Potain's sphygmomanometer. In the twenty-four cases observed by these writers, arterial depression occurred in twenty-two, and, generally speaking, the number of pulse beats followed quite exactly the modifications in the degree of arterial tension, diminishing during sleep and increasing and finally attaining the normal number when consciousness had returned. In all their cases they noticed intermitting in the beats. Occasionally the urine, which was normal before the administration of the anesthetic, contained traces of albumen and bile pigments when the patient regained consciousness, which would indicate that the liver and renal cells participate in the ephemeral intoxication produced by the chloride of ethyl in a few cases; but these symptoms disappeared in a few days.

Up to within the last few years chloride of ethyl has been more especially known as a local anesthetic, and has been employed in dental and minor surgery. On account of its extreme volatility it produces an intense cold and a superficial freezing of the tissues, quite sufficient for momentarily abolishing the sensibility. In 1895 a dentist of Gothenburg, by name Carlson, unwittingly obtained a general narcosis in a patient on whom he had frozen the gum with the chloride of ethyl.

The following year, Thiesing of Nildesheim published the results of five general anesthetics with this drug. The narcotic effects of this product were studied scientifically for the first time by Ludwig and Lotheissen in von Hacker's clinic at the University of Innsbruck in 1897 and 1898. The patients anesthetized by Ludwig varied in age from two to sixty-four years. This authority believes that muscular resolution is never complete when this agent is used, but, on the other hand, he never had any accident. The pulse and respiration were increased in the beginning on account of a psychical action and then their frequency returned to the normal standard.

Wiesmer, a surgeon in the Austrian army, has come to the same results in four hundred cases. Muscular resolution is, according to him, never complete, but he found it quiet sufficient for the reduction of old dislocations and to bring a fractured patella into apposition. Von Hacker has employed this drug without any bad result in patients afflicted with fatty degeneration of the heart, various respiratory affections, and in those weakened by abundant hemorrhages. The operations lasted from four to fifty minutes, and in the twenty-two cases the patients varied in age from seventeen to seventy-six years. Koenig of Berne, to whose experiments published in 1900 I have already referred, also records forty general narcoses, thirty-one of which were continued by ether. Among other surgeons who have resorted to the use of this excellent anesthetic may be mentioned Ware, Hoelsted, Stockun, Tchernig, Hafner, Severeano, Verneuil, Casdie, Seitz, Speier and Jacobs. Pollosson of Lyons has employed this drug as a general anesthetic in adult patients, and has lauded its advantages, and Nové-Josserand has employed it currently in children either alone or as a mixed anesthesia, continuing the narcosis with ether. It has been largely used by Rolland and Clerc of Bordeaux, by Deroque of Ronen, and, in Chaput's opinion, chloride of ethyl will take the place of chloroform or ether in all minor operative work.

Malherbe has published the results of one hundred and seventy narcoses with chloride of ethyl. There were one hundred and forty anesthetics with this drug alone for various minor operations on the upper respiratory tract, such as the removal of adenoids and tonsils, the removal of cysts, antrotomy, etc. Nearly all these anesthetics were accomplished in Rose's position, the ages of the patients varying from two months to forty years. There were thirty mixed anesthetics, that is to say, chloride of ethyl followed by chloroform, both in children and adults, for various operations, such as abdominal operations, resections of bones, etc.

In giving chloride of ethyl Malherbe employed a compress, and the conclusions that he arrives at are as follows:

- (1) Small quantities of chloride of ethyl, from two to four grams, are sufficient for producing a narcosis lasting four minutes, and can be renewed indefinitely.
- (2) Rapidity of the anesthesia (from twenty-five to forty seconds).
- (3) Practically no congestion of the face or conjunctiva; never any cyanosis.
- (4) The period of excitement is reduced to a few

defensive movements, and these only in neurotic or alcoholic patients.

(5) Contraction in the beginning rarely exists and immediately disappears; no trismus, no salivation. Occasionally emission of urine.

(6) The age of the patient is indifferent, and no disturbing symptom occurs.

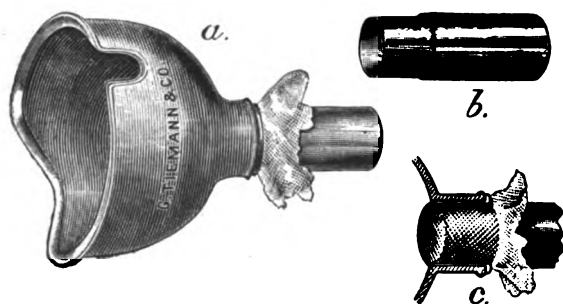
(7) Vomiting after administration of chloride of ethyl alone does not occur; vomiting occurring after a mixed anesthesia is not frequent, and if present rapidly subsides.

(8) Rapid return to consciousness.

Malherbe insists on the simplicity of the method he employs, and on the absolute safety and rapidity of the narcosis. From personal experience with this agent I can agree with the above conclusions in most respects. Reboul is very enthusiastic over anesthesia by chloride of ethyl, which he has employed in nearly two hundred cases, and Guinard uses it currently preparatory to the administration of chloroform, and this mixed anesthesia is also employed by quite a number of other Parisian surgeons.

The advantages of narcosis with this product in obstetrics have been placed in evidence by Lepage and Le Lourier. Ten cubic centimeters of the product are poured upon a compress folded in the form of a cone and covered with oiled silk, and this produces a narcosis of from three to four minutes, which is quite sufficient for the application of the forceps in the pelvic excavation, perineal sutures, or for an examination of narrow pelves. If during the operation a longer anesthesia is desired, chloroform may be substituted for the chloride of ethyl.

There are two methods of giving chloride of ethyl, one by means of a compress saturated with the product, and the other with a mask manufactured expressly for this purpose. The French manufacturers of the chloride of ethyl, or as it is known in the market, "Kelene," have introduced an appliance which, although useful, is very expensive. The face piece can be blown up to any desired dimensions, and so fit any sized person. On top the cone is furnished with two valves, one through which air saturated with the anesthetic arrives during inspiration, the other giving exit to expired air. At each expiration the latter valve rises up, and is an excellent index as to the regularity of breathing.



We have used, however, a cone devised by Dr. M. W. Ware and manufactured by Tiemann & Co. of New York, which is very low in price and has given us in every instance most satisfactory results. It is an oval rubber cone, on the top of which is a hole about the diameter of a twenty-five-cent piece. Into this hole fits a metallic tube about two inches in length, through which the chloride of ethyl is

sprayed directly into the cone, three layers of gauze having been placed over the end of the tube which is inserted into the mask to prevent the anesthetic from coming into direct contact with the patient's skin. The cut here given shows the simplicity of the instrument better than words can express it.

There is one recommendation that we would make, namely, that it is not an indifferent matter to employ for general anesthesia any kind of product found on the market intended for local anesthesia. The products known under the name of "Kelene" and "Antidolorin" are very pure, and the manufacturers now put them up in graduated tubes, especially for general anesthetic purposes. The first named is a French make, while the second is an American product which is quite equal to the other. A third make, known by the name of "Anodynone," I have recently tried and find most satisfactory.

The mask is first placed on the patient's face and examined to see if it hermetically closes in around the nose, mouth and chin of the patient. The patient is then allowed to breathe naturally for an instant, and when the respiration has become regular and quiet the chloride of ethyl is sprayed down the tube of the apparatus. The patient is then asked to take a few long, deep inspirations, and in about thirty to forty seconds complete insensibility is obtained.

If, on the other hand, a compress is preferred, it is better to make it in the following way on account of the extreme volatility of the drug. Two thicknesses of gauze are folded over a thin layer of absorbent cotton, and over this on one side a piece of oiled silk is stitched on. Then the form of a cone is given to it and the chloride of ethyl is poured on to it in sufficient quantity. The cone is then hermetically applied over the nose and chin, while the hands are placed on the sides in order to prevent the entrance of air from underneath. The patient is then requested to breathe deeply, and in about fifteen inspirations anesthesia is obtained. It would seem from personal experience that the administration with the compress would be longer and much more difficult than with a rubber mask, and that more time would be consumed in getting the patient under the influence of the drug.

The doses of chloride of ethyl which have been employed to obtain general anesthesia vary from two to five cubic centimeters. These small doses we have not employed, and from the records of the cases given at the end of this paper, it will be found that ten cubic centimeters is the usual amount required. This, as is seen, is a much larger dose than that usually given by other surgeons, but if we give enough chloride of ethyl the narcosis is very much more rapidly obtained and its duration will be considerably longer. In one case, that of a young lady of twenty-five, 38 cc. were given before narcosis could be obtained, but the patient did not struggle and finally became unconscious. It will also be noted that the larger number of our cases has been major operations, and that consequently the anesthesia has been continued with ether. It is evident that chloride of ethyl can never completely replace either ether or chloroform, but nevertheless its advantages in the beginning of

the narcosis are so great that its use will without doubt become general when it is better known.

Although our personal experience with this anesthetic is as yet comparatively small, I think that it may be said, without concluding in a definite manner, that chloride of ethyl may be given to subjects of any age, principally at the two extremes of life, at a time when the organism does not as yet present, or, on the other hand, has lost that vitality which is requisite to support the shock of an anesthetic, be it either chloroform or ether. In examinations requiring a general anesthetic, there is nothing that can compare with it, and for short operations, such as arthrotomy, the opening of an abscess, deep canterizations, curettement of the uterus, the reduction of certain dislocations and fractures, etc., it is ideal. General surgery is not alone to profit by the innocuity of chloride of ethyl, and throat specialists will find it of great value.

On account of the facility with which it is given, and its harmlessness, an experienced anesthetist is not required, and it may be given by any careful physician. These are the principal advantages which this anesthetic presents for operations of short duration, not lasting over four or five minutes. When used as a preliminary to the administration of ether, it avoids the period of excitement which is so disagreeable, and on account of its pleasant odor and non-stifling effect the most nervous patient will take it with ease. Besides this, the amount of ether used afterwards may be safely put at one-third or one-half less than would have been required had the anesthesia been entirely with ether. The transition from one anesthetic to the other is quite insensible. There is no doubt in my mind but that operative shock has been greatly diminished in the major operations I have done when chloride ethyl has been used as a preliminary anesthetic, and that nausea has been absent in almost all of them when consciousness has returned.

Such are the principal indications for the use of chloride of ethyl, and as to the contraindications, it may be said that up to the time of writing none have been given. The method is as yet too young for us to affirm that such will always be the case, and for the time we must wait for a greater experience to give sanction to the statements that we advance at this time. We have never seen any cyanosis, and the return to consciousness takes place with regularity and quiet.

The following list gives the nature of the operation, the age and the condition of some of the patients to whom this anesthetic has been given from July 10 to Oct. 10, 1902. My thanks are particularly due to Dr. Eugene E. Everett, who has administered the anesthetic in the greater number of the cases reported below.

CASE I. Male, thirty-two years old. Suppurating gonorrhoeal arthritis of the left knee. Arthrotomy. Dose employed, 17 cc. Complete narcosis in 35 seconds, lasting seven minutes. Return to consciousness quiet and rapid.

CASE II. Female, thirty-seven years old. Anal fistula. Incision and cauterization. Dose employed, 14 cc. Narcosis complete in 30 seconds, lasting six minutes. Rapid return to consciousness. No nausea.

CASE III. Female, twenty-five years old. Metritis *post abortum*. Curettement. Dose employed, 15 cc. Complete narcosis in 45 seconds. Duration of narcosis

seven minutes. Return to consciousness rapid. No nausea.

CASE IV. Male, fifty years of age. Dislocation of the shoulder. Reduction. Mitral insufficiency. Dose employed, 15 cc. Duration of narcosis five minutes. Consciousness rapidly regained. No nausea.

CASE V. Female, thirty-seven years old. Bilateral sclero-cystic ovaries, endometritis. Curettement, posterior colpotomy, and resection of ovaries. Dose employed 8 cc., anesthesia continued with ether. Duration of operation 35 minutes. Amount of ether given, 45 cc. No nausea following return of consciousness.

CASE VI. Female, thirteen years old. Removal of both tonsils and adenoids. Dose employed, 6 cc. Anesthesia obtained in 75 seconds. Struggling of short duration. Narcosis continued with ether, the total amount being 25 cc. Return to consciousness immediate. No nausea.

In this case the amount of chloride of ethyl given was not quite sufficient to obtain perfect unconsciousness.

CASE VII. Female, twenty-six years old. Double suppurating salpingitis. Very septic. Abdominal extirpation. Amount of ethyl chloride used, 12 cc. Narcosis continued with ether. Duration of operation, one hour. No nausea.

CASE VIII. Male, thirty-two years old. Gangrene of testicle, due to torsion of spermatic cord. Orchidec-tomy. Amount of ethyl chloride used, 10 cc. Narcosis continued with ether. No nausea.

CASE IX. Female, thirty years old. Movable kidney. Nephropexy. Amount of ethyl chloride, 12 cc. Narcosis continued with ether. No nausea.

CASE X. Female, twenty-eight years old. Exophthalmic goitre. Strumectomy of right lobe. Chloride of ethyl, 13 cc. Narcosis continued with ether. No nausea.

CASE XI. Female, forty-eight years of age. Carcinoma of the breast. Amputation. Although the patient was very fat, weighing about 275 pounds, 15 cc. of ethyl chloride were sufficient to produce complete narcosis in 45 seconds. Narcosis continued with ether.

CASE XII. Female, twenty-eight years old. Tuberculosis of the bladder. Suprapubic cystotomy. Amount of ethyl chloride employed, 15 cc. Narcosis continued with ether. No nausea.

CASE XIII. Male, twenty-seven years old. Varicocele. Resection of the veins and scrotum. Amount of ethyl chloride, 10 cc. Complete narcosis in 40 seconds. Continued with ether. No nausea.

CASE XIV. Male, thirty-two years old. Stricture of the urethra. Internal urethrotomy. About 10 cc. of ethyl chloride produced complete relaxation in one minute. Ether. No nausea.

CASE XV. Male, thirty-five years old. Stricture of the urethra. Internal urethrotomy. Ethyl chloride, 10 cc. Relaxation complete in 65 seconds. No resistance. Ether. No nausea.

CASE XVI. Female, twenty-seven years old. Ovarian cyst and pyosalpinx. Laparotomy. Ethyl chloride, 12 cc. Incomplete relaxation in 65 seconds. No resistance. Ether. No nausea.

CASE XVII. Male, fifty-five years old. Epispadias. Plastic operation. Ethyl chloride 10 cc. Complete relaxation in 58 seconds. No resistance. Ether. No nausea.

CASE XVIII. Female, twenty-one years old. Appendectomy. Ethyl chloride, 11 cc. Complete relaxation in 62 seconds. No resistance. Ether. Very little nausea.

CASE XIX. Female, fifty years old. Malignant tumor of the ovary. Laparotomy. Ethyl chloride, 10 cc. Complete relaxation in 62 seconds. No resistance. Ether. Very little nausea.

CASE XX. Male, sixty years old. Carcinoma ventriculi. Exploratory incision. Ethyl chloride, 13 cc. Complete relaxation in 64 seconds. No resistance. Ether. No nausea.

CASE XXI. Female, forty years old. Hemorrhagic metritis. Vaginal hysterectomy. Ethyl chloride, 15 cc. Complete relaxation in 68 seconds. No resistance. Ether. No nausea.

CASE XXII. Male, twenty-one years old. Appendicular abscess. Laparotomy. Ethyl chloride, 12 cc.

Complete relaxation in 50 seconds. No resistance. Ether. No nausea.

CASE XXIII. Female, thirty-two years old. Bilateral laceration of the cervix, retroverted uterus, sclerocystic ovary, prolapsed. Laparotomy. Ethyl chloride, 12 cc. Incomplete relaxation in 75 seconds. No resistance. Ether. No nausea.

CASE XXIV. Female, seven years old. Tonsils and adenoids. Ethyl chloride, 5 cc. Complete narcosis in 15 seconds. Ether. No nausea.

CASE XXV. Female, thirty-five years old. Curettage. Ethyl chloride, 8 cc. Incomplete relaxation in 58 seconds. No resistance. Ether. No nausea.

CASE XXVI. Female, thirty-five years old. Pregnancy, complicated by fibroid tumors. Conservative Cesarean section and myomectomy. Ethyl chloride, 10 cc. Complete relaxation in 65 seconds. No resistance. Ether. No nausea.

CASE XXVII. Female, fifty-four years old. Excision of axillary glands. Ethyl chloride, 10 cc. Complete relaxation in 65 seconds without resistance. Ether. No nausea.

CASE XXVIII. Female, thirty-five years old. Suppurating mastitis. Excision of abscess. Ethyl chloride, 12 cc. Complete relaxation accompanied by some resistance in 75 seconds. Ether. No nausea.

CASE XXIX. Female, forty-five years old. Adenoma of thyroid gland. Strumectomy of right lobe. Ethyl chloride, 10 cc. Complete relaxation without resistance in 75 seconds. Ether. Slight nausea.

CASE XXX. Female, forty-three years old. Floating body in knee joint. Arthrotomy. Ethyl chloride, 15 cc. Complete relaxation without resistance in 70 seconds. Ether. Very little nausea.

CASE XXXI. Male, five years old. Unconsolidated fracture of the humerus. Bone suture. Ethyl chloride, 8 cc. Narcosis complete in 55 seconds, without resistance. Ether. No nausea.

CASE XXXII. Male, two years old. Phymosis. Circumcision. Ethyl chloride, 6 cc. Complete relaxation without resistance in 60 seconds. Ether. Immediate return to consciousness without nausea.

CASE XXXIII. Female, thirty-two years old. Appendectomy. Ethyl chloride, 12 cc. Complete relaxation without resistance in 70 seconds. Ether. Very little nausea.

CASE XXXIV. Female, twenty-eight years old. Septic miscarriage. Curettage. Ethyl chloride, 9 cc. Complete relaxation without resistance in 65 seconds. Ether. No nausea.

CASE XXXV. Female, twenty-six years old. Double pus tubes and vulvo-vaginal abscess. Excision of vulvo-vaginal glands, and laparotomy. Chloride of ethyl, 15 cc. Complete relaxation without resistance in 70 seconds. Ether. Slight nausea.

CASE XXXVI. Female, twenty-four years old. Curettage. Ethyl chloride, 20 cc. Incomplete relaxation with slight resistance in 90 seconds. Ether. No nausea.

CASE XXXVII. Female, forty years old. Laparotomy. Ethyl chloride, 20 cc. Incomplete relaxation with considerable resistance in 90 seconds. Ether. No nausea.

CASE XXXVIII. Male, thirty years old. Appendectomy. Ethyl chloride, 15 cc. Complete relaxation without resistance in two minutes. Ether. No nausea.

CASE XXXIX. Female, thirty-three years old. Cystoscopy. Ethyl chloride, 20 cc. Complete relaxation with slight resistance in two minutes. Ether. No nausea.

CASE XL. Female, thirty-five years old. Laparotomy. Ethyl chloride, 15 cc. Complete relaxation without resistance in 90 seconds. Ether. No nausea.

CASE XLI. Female, fifty years old. Excision of carcinomatous lymphatics. Ethyl chloride, 12 cc. Nervous crying without resistance, narcosis in 70 seconds. Ether. Very little nausea.

CASE XLII. Female, twenty-eight years old. Double ingrowing toe nail. Ethyl chloride, 20 cc. Complete relaxation without resistance in two minutes. Ether. No nausea. This patient had been operated on twice before, ether having been used at each operation, which was followed by nausea, lasting twenty-four hours each time.

CASE XLIII. Male, two years old. Phymosis. Circumcision. Ethyl chloride, 9 cc. Complete relaxation with crying and resistance in 90 seconds. Ether. No nausea.

CASE XLIV. Female, thirty years old. Laparotomy. Ethyl chloride, 13 cc. Complete relaxation without resistance in 70 seconds. Ether. No nausea.

Up to Dec. 30, 1902, I have had ethyl chloride administered preliminary to ether in 153 cases without the slightest accident, and in each case with much comfort for both patient and operator.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

By F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D.

SURGICAL INTERVENTION IN CASES OF MEDICAL NEPHRITIS. (A. POUSSON.)

POUSSON¹ reviews the above subject exhaustively and adds certain personal experiences of his own to the cases already published in the literature.

Surgical intervention in cases of nephritis is considered with reference to two distinct classes of disease, — first, acute toxic infections, and, second, the subacute or chronic form of nephritis or true Bright's disease. Of the former, Pousson has had four cases. In two of them nephrotomy, and in two nephrectomy was performed; three of the patients recovered and one died. In one case the infection appeared in the course of an attack of grip. Two cases were colon bacillus infections, and one was a fresh infection of an old pyelo-nephritis.

Nephrotomy is given preference as the operation to be performed in the cases of acute infection, such as those just referred to.

Pousson's experience of surgical intervention in cases of Bright's disease is limited to six cases, in which eight operations were performed. Two of these patients died, nephrotomy was performed in all the cases, in one it was repeated on one side after having been at first done on the other. Nephrectomy was performed subsequent to nephrotomy in one case. The cases are exhaustively detailed and careful examinations of the urines are included in the articles. In four of the cases of diffuse chronic nephritis, there was marked amelioration of the symptoms, in one of them to all appearance a cure. The writer summarizes the results hitherto published, and discusses the subject from various points of view. Pousson reviews the cases hitherto published, beginning with those of the pioneer of the treatment, Edebohls of New York, who reported in the New York Medical Record, Dec. 21, 1901, eighteen cases in which surgical operation upon the kidneys, which were the seat of chronic interstitial nephritis, resulted favorably upon that condition. In all but the last two of these nephropexy was performed on one or both kidneys. In these the capsule of the kidney was excised.

Edebohls calls attention to the fact that Bright's disease may be unilateral. He gives the technique of decapsulation, and the results of the operations performed by him. In all the nephropexies

¹ *Annales des Maladies des Organes Genito-Uriinaires*. Nos. 5, 6 and 7. May, June and July, 1902.

there was extensive stripping off of the capsule.

Edebohls also explains what he believes to be the rationale of the benefit or cure resulting from these operations.

SEGREGATION OF THE URINE IN THE BLADDER. A NEW INSTRUMENT FOR THE PURPOSE OF COLLECTING IN THE BLADDER THE URINE OF EACH KIDNEY, INDEPENDENTLY. (DR. F. CATHELIN.²)

This instrument is a catheter of No. 25 (French scale), enclosing a flattened tube, along which slides a stylet, graduated at its proximal end and having at its vesical end a fine steel spring which is capable of folding flat so as to be readily passed through the median tube, and which when pushed beyond the extremity of the beak of the instrument, which lies within the bladder, expands to an elliptical form. Within the ellipse is a thin membrane of rubber, which serves to divide the bladder, from its floor upward, into two chambers, and which does not allow the urine which stands on one side of it to mingle with that which is on the other. There are also two lateral tubes within the shaft of the instrument, through each of which small catheters may be passed, which issue one on either side of the membrane which separates the urines coming from the two kidneys, and thus allows the tapping of the two reservoirs, into which they enter separately. At the outer end of the instrument these catheters are conducted into little flasks which collect the urines coming from the two chambers of the bladder, made by the membrane already described. The outer part of the shaft is arranged to be supported by a rest which does away with the necessity of holding it, which has been one of the defects of other forms of instruments devised for this purpose.

SEPARATION OF THE URINE FROM THE TWO KIDNEYS.

Luy³ in the fifth session of the French Society of the Genito-Urinary Surgery, recalls the three instruments already in use for the segregation of urine; namely, those of Neumann, Harris and Downes, and presents a fourth instrument of his own invention. It has no rectal portion like the Harris instrument already described in a previous article. It is shaped like a lithotrite, and has a caliber of about twenty-one, French scale. It is made up of two catheters bound together by a metal diaphragm, which is covered with rubber. The rubber can be raised into a partition or bridge between the two catheters. The instrument can be easily manipulated and is readily sterilized.

CONCERNING THE ELIMINATION BY THE KIDNEYS OF BACTERIA INJECTED INTO THE ARTERIAL BLOOD CURRENT. (P. ASCH.)

Asch⁴ injected into the aorta, in the neighborhood of the renal artery, cultures of pyocyanus and pyogenes aureus, and subsequently examined the urine from the bladders of these animals. He found: First, that within from twelve to twenty-four hours after the injection, these bacteria appeared in the urine, and that albumen was always, and blood sometimes, associated with their appearance, sec-

ond, that the bacteria were still demonstrable in the urine after they had ceased to exist in the blood; third, that severe lesions took place in the kidneys, differing according to the kind of bacteria injected.

He concludes that the normal kidneys do not eliminate these bacteria, and that if they are found in the urine, their presence indicates disease of some part of the urinary system.

REMOVAL OF THE BLADDER AND PROSTATE FOR CARCINOMA. (MALCOLM L. HARRIS.)

Harris⁵ reports the case of a patient fifty-three years old, upon whom he operated Oct. 5, 1901, for the above condition, by a longitudinal suprapubic incision, and freeing the bladder from the peritoneum on either side, by blunt dissection as far as the urethra, dividing it transversely at this point, turning it upward, dissecting it from the rectum, and dividing it across near the summit. A portion of the top of the bladder, about six centimeters in diameter, was retained. Small slits were made in this portion, through which the ends of the ureters were drawn and sutured with fine catgut. This remaining portion of the bladder was then stitched by its edges to the inner border of the outer wound, except at the lower part. The cavity of the pelvis was packed with gauze. Subsequently the suprapubic wound was drawn together and united over the attached portion of the bladder referred to, and a catheter was passed through the urethra, and all the urine was drawn by this means, it being retained permanently.

Six weeks later he contracted pneumonia, from which he died. The patient had previous to this been up and about.

BILATERAL CYSTIC KIDNEY.

Osler⁶ reports two cases of this rarely diagnosed condition and speaks of these characteristic symptoms:

- (1) Presence of bilateral tumors in the flanks.
- (2) The changes in the heart and circulation are those of interstitial nephritis.
- (3) The urine is that of interstitial nephritis.
- (4) Hematuria.

AN AID TO THE DISCOVERY OF TUBERCLE BACILLI IN THE URINE. (BRYSON.)

The writer⁷ calls attention to the fact that "the bladder may be utilized as a collecting reservoir for entrapping and holding large numbers of tubercle bacilli when in the course of a tuberculous disease these micro-organisms enter the urine stream." He presents a series of observations in which he shows that while the tidal urine, that is, the urine which is voided naturally, may contain very few bacilli, the residual urine drawn by catheter from the same case at the same time may contain large numbers. The article is carefully presented and is illustrated by a number of micro-photographs of residual urines containing large numbers of bacilli.

TUBERCULOSIS OF THE PROSTATE.

Crandon⁸ reports a case in which a primary focus of tuberculosis was found at autopsy in one lobe of

¹ Annales des Maladies des Organes Genito-Urinaires. No. 7, July, 1902.

² Annales des Maladies des Organes Genito-Urinaires, 1901, p. 1377.

³ Centralblatt, f. d. Krankheiten d. Harn und Sexual Organe. Bd. xiii, H. 5 u. 6.

⁴ Annals of Surgery. October, 1902, vol. xxxvi, No. 4, p. 509.

⁵ Am. Med., March 22, 1902, p. 463.

⁶ Journ. of Cu. and Gen.-Urin. Dis., September, 1902.

⁷ Boston Med. and Surg. Journ., July 3, 1902.

the prostate. All other portions of the genito-urinary tract, and, in fact, all other portions of the body, were free from tuberculous invasion. The case is therefore one of a very few, if not the only recorded case in which tuberculosis was present in the prostate and was found nowhere else in the body.

NEW OPERATIVE METHODS FOR THE REMOVAL OF THE PROSTATE GLAND. (WISHARD.)

The writer⁹ has devised an instrument through which a cautery can be applied to the prostate. The instrument consists of a straight tube forty-two millimeters in circumference and six and one-half inches long, with an oblique opening at its distal end. The tube carries an incandescent lamp which is exposed through a small window at the distal end. On the opposite side of the tube is a groove for the insertion of the cautery. The tube is inserted through a perineal opening made for the purpose, and a variety of cautery knives can be used through it with air distention of the bladder. Wishard claims the great advantage which air distention and direct inspection of the parts to be operated upon gives. He reports four cases.

E. Wyllys Andrews¹⁰ describes an operation by which the prostate is approached from below the pubic arch through an incision eight to ten centimeters in length, extending from the symphysis parallel to the right or the left ramus of the pubic bone, with the corresponding spermatic cord drawn well forward. His conclusions are:

(1) The narrowness of the male pelvic outlet becomes surgically important with the overgrown prostate.

(2) Overgrowth of the prostate does not cause obstruction unless there is also outside pressure.

(3) This may come from the ligaments and muscles without the organ actually pressing upon the ischia, or from bony pressure.

(4) Relieving the prostate from the fixed state behind the pubis allows it to expand and cures the obstruction.

(5) This can be done best by anterior incision, and should be accompanied by a cutting of the prostatic ring and removing a segment extraurethraly.

(6) Incidentally the change of position, lowering the bladder outlet, does away with the retroprostatic pouch and greatly assists natural drainage.

(7) The separation of the prostatic and urethral ligaments from the pubis and the weakening of the urogenital diaphragm is not to be avoided, but sought.

A NEW ELECTRIC CENTRIFUGE.

J. L. Boehm¹¹ describes a new centrifuge which is adapted either to a direct and alternating, or a storage-battery current, and is operated by simply inserting a plug into an incandescent lamp holder or socket.

A NEW SILVER SALT. ARGYROL¹² AND SWINBURNE.¹³

Both describe their experiences with this new irrigating solution. Both state that it has marked

⁹Journal of Cutaneous and Genito-Urinary Diseases, for June, 1902.

¹⁰Journ. Am. Med. Asso., Oct. 18, 1902.

¹¹St. Louis Med. Rev., Sept. 27, 1902.

¹²Christian Med. Rec., Sept. 27, 1902.

¹³Med. Rec., Oct. 11, 1902.

germicidal powers, that it is not in the least irritating, and that it can be used as frequently and in as strong solution as is desired or necessary, without discomfort. Five per cent solutions can be used with practical impunity.

A NEW METHOD OF FINDING THE URETHRA IN EXTERNAL URETHROTOMY. (C. L. GIBSON.)

The writer¹⁴ in experimenting on the cadaver has found that traction on the prostate downward and backward will render the deep urethra taut and easily recognizable, and will give a ready entrance into it in cases of stricture where no guide can be introduced. He accomplishes this traction by transfixing the prostate laterally from the rectum by means of a sharp hook. The traction is made by an assistant pulling on this hook, and then the perineal incision it made down to the taut and easily felt urethra.

STRICTURE OF THE URETER.

Kelly¹⁵ describes and classifies such strictures, speaks briefly of their symptoms and their diagnosis aided by palpation, inspection and catheterization, and reports several cases illustrating the treatment of such conditions by dilatation, by catheterization and lavage, by freeing the ureter from adhesions, by extirpation of the whole diseased tract in a case of tuberculosis, by transplantation, and, finally, by division of the stricture itself.

"STAMMERING" BLADDER.

Fenwick¹⁶ insists that this term should be applied only to those cases where urination cannot be accomplished at will, although all the organs for the proper performance of the act are apparently normal. He says that the true cause is not spasm of the sphincter, but is spasm of the compressor urethræ muscle, a section of which, with or without opening the urethra, will cure the difficulty. He described cases of "false stammering" as those due to a reflex irritation and lack of co-ordination of the expelling muscles.

Reports of Societies.

AMERICAN PUBLIC HEALTH ASSOCIATION.

PROCEEDINGS OF THE THIRTIETH ANNUAL MEETING, HELD IN NEW ORLEANS, LA., DEC. 8, 9, 10, 11 AND 12, 1902.

The association convened in Tulane Hall under the presidency of Dr. HENRY D. HOLTON of Brattleboro, Vt.

The opening

ADDRESS OF WELCOME

was delivered by REV. MAX HELLER of New Orleans.

After the transaction of routine business, the address of papers and reports was begun.

REPORT OF COMMITTEE ON DISPOSAL OF REFUSE MATERIALS.

This was read by Dr. W. C. WOODWARD of Washington, D. C., a member of the committee. The

¹⁴Transactions of the New York Academy of Medicine, Section of Genito-Urinary Surgery; Journal of Cutaneous and Genito-Urinary Diseases for 1902, p. 564.

¹⁵Journ. Am. Med. Asso., Aug. 16, 1902.

¹⁶Brit. Med. Journ., Feb. 1, 1902, p. 361.

report stated that the present condition of the art of disposal of city refuse had not advanced materially in the last year. Many of the largest cities in America had more or less successful reduction plants, for the extraction of the grease. The latest, and in some parts of the country still the most common, method of disposal, namely, that of feeding kitchen garbage to swine, was now earnestly advocated by a prominent health officer, although most ardently opposed by most sanitarians for many years. It was advocated because, under many conditions, it was not unhealthful if properly conducted, and it was more economical in smaller communities than any other method. The Berlin proposition of converting kitchen garbage into compost had not yet been sufficiently tried. The results with this method in this country did not seem promising, except where the soil was quite barren and the cost of labor very low.

REPORT OF THE COMMITTEE ON ANIMAL DISEASES AND ANIMAL FOOD.

In the absence of the chairman of this committee, the report was read by a member of the committee, DR. M. P. RAVENAL of Philadelphia. Reference was made to researches with regard to the communicability of human tuberculosis to animals. The experimental work of Ravenal, Mohler, De Jong, Delepine, Orth, Stenstrohm, Fibiger and Jansen, Max Wolff, Nocard, Arloing, Behring and a number of other investigators, was referred to at length, and these investigations were sufficiently numerous and harmonious in the results to establish the following conclusions:

(1) The bacillus tuberculosis found in human tuberculosis differed greatly in its pathogenic powers as obtained from different cases.

(2) Two types of tubercle bacilli might be obtained from man, namely, one which was somewhat difficult to cultivate, which grew slowly, and the bacilli of which are short, stubby and free from beading, — the so-called bovine type; and the second, which was quite easily cultivated, grew rapidly, was longer, thinner and inclined to show beading and curved forms, — the so-called human type.

(3) Virulent cultures might be obtained from both of these types, which, when inoculated, according to the methods used by Koch, and upon the species of animals specified by him, produced progressive and fatal tuberculosis.

(4) The contention that human tuberculosis could not be transmitted to asses, sheep, goats and especially to cattle, had been completely disproved.

(5) Koch's failure to produce tuberculosis in the animals named with bacilli from human sources was probably due to the use of bacilli of low pathogenic powers.

The report then discussed at length investigations as to the transmission of bovine tuberculosis to man, mentioning the experimental work recently done in this line. The results of these investigations showed:

(1) While the bacilli of human tuberculosis were found of feeble virulence for cattle, there was a considerable proportion of cases in which these bacilli were virulent for cattle as well as other animals.

(2) Bacilli of both the bovine and human type had been obtained from cases of human tuberculosis.

(3) Bovine bacilli introduced into the human tissues by accidental inoculation, if left, multiplied and produced disease at the point of inoculation, and even recovered after a considerable time with their vitality and virulence unimpaired.

(4) Various statistical studies indicated that a considerable proportion of cases of human tuberculosis, and particularly with children, originated from the ingestion of the bacilli with contaminated food.

It appeared to the committee, therefore, that the conclusions of Koch, announced at the British Congress of Tuberculosis, to the effect that bovine and human tuberculosis were different; that human tuberculosis could not be conveyed to cattle, and that man was insusceptible to bovine tuberculosis were disproved, and should no longer have weight with sanitarians. The evidence adduced indicated that greater care should be exercised to prevent infection with bovine tuberculosis, and particularly to guard children from tuberculous milk.

SANITARY MEASURES PROPOSED TO THE MEXICAN RAILWAY COMPANIES.

DR. EDUARDO LICEAGA, president of the Superior Board of Health of Mexico, read a paper on this subject. The measures urged were:

(1) To increase the number of cuspidors, and furnish them with disinfecting solutions capable of destroying the tubercle bacilli.

(2) Place in conspicuous places placards containing the following: Please spit exclusively in the spittoons, as otherwise the germs of infectious diseases, especially those of tuberculosis, will be carried into the air.

(3) Until the padding of the cars was changed for other and more convenient drapery, a wise plan would be to disinfect the car every time it was unoccupied with a solution of formaldehyd, which would not alter the condition of the cloth nor its color.

(4) Disinfect all sheets and pillow cases before sending them to the laundry.

(5) Also disinfect the tapestries and couches.

(6) Keep the car as clean as possible, and especially the closets and urinals.

The railroad companies in Mexico considered the above suggestions practical, and promised to enforce them.

COOPERATION ESSENTIAL TO PROGRESS IN VITAL STATISTICS.

DR. CRESSY L. WILBUR of Michigan presented a paper on this subject, in which he said we were at the beginning of a new era when, for the first time in the history of the country, there was an opportunity for continued systematic coöperation between the permanently organized departments of the national government and the various state and municipal systems of registration, to the end that accurate and uniform statistics of mortality might be obtained for the United States and made available for the use of all public health offices.

VITAL STATISTICS: A PLEA FOR ACTUARIAL ADMINISTRATION AND CONTROL OF THE GREAT RESOURCES OF PREVENTIVE MEDICINE.

The author of this paper, DR. JOHN S. FULTON of Baltimore said the federal census being now

maintained as a permanent part of the national government, should (1) be at the approach of another census year better than ever prepared to rapidly and accurately count the people, making notes of all the data needed for statistical purposes; (2) it should make such *ad interim* studies of the births and deaths occurring in non-registration areas as would serve for the better correction of the enumerators' returns for the census year; (3) it should commit all vital returns to the hands of a trained medical statistician who understands the moods and tenses of vital mathematics.

Local registration should cover: (a) Records of deaths made at the time and place of their occurrence, by the most competent persons acquainted with the facts, including a medical certification of the cause of death, the making and filling of such a record being, in every instance, an indispensable preliminary to the disposal of the dead body. (b) Records of birth, secured by the payment of fees, by every appeal to private interest and public necessity, including, if possible, conditioning of certain privileges of citizenship upon recorded evidence of attained age. (c) Records of marriage and divorce, with all such items of information as had statistical importance. (d) Records of sickness, including all cases of those infectious diseases which fell within the provisions of the notification laws, all cases of sickness which came under study in the public health laboratories, all sickness which was relieved at public cost, and all sickness falling under the observation of inspectors of schools, tenements and factories.

The data of vital statistics should be systematically utilized, not only for the broader purposes which had grown into common use, but for the minuter inquiries to which such records in large numbers and of great variety were adapted.

DR. LOUIS E. RUIZ of Mexico presented a paper in which he spoke of the period in which every contagious disease could be transmitted and, also, of the period in which every sick person was dangerous to healthy persons near him.

DR. JOSÉ P. GAYON of Mexico read a paper in which he spoke of the transmission of pathogenic fungi by flies and mosquitoes.

DR. JESUS E. MONJARES of Mexico discussed the principal causes of infectious diseases and the chief means of guarding against them.

At the evening session of the first day, addresses of welcome were delivered by his Honor Mayor Paul Capdevielle on behalf of the city, and by Hon. Jared Y. Sanders, Speaker of the House of Representatives, on behalf of the state. These addresses were responded to by President Holton.

PRESIDENTIAL ADDRESS.

DR. HENRY D. HOLTON, the president, reviewed the status of sanitation in the United States, saying the most wonderful progress had been made along all sanitary lines. Much of it was the result of the work of members of the association.

In speaking of yellow fever, he said we should recognize the great courage of such devotees of science as Drs. James Carroll and Jesse W. Lazear. The practical results of work done in regard to yellow fever had been evidenced this past summer, in that not a case of this disease had originated in the

island of Cuba for the past fourteen months, and the quarantine period had been shorter by three months.

He referred feelingly to the deaths of Drs. Walter Reed, Robert C. Kedzie, Albert L. Gihon, Thomas J. Turner, John P. Kimball, Francis W. Lewis, George E. Tyler and Wyatt Johnston.

Speaking of sanatoria for tuberculosis, he said that when education had advanced a step further, and the public came to appreciate that sanatoria for the tuberculous opened, to such as had unfortunately become infected, the most promising avenue of escape from certain death, and at the same time was an additional safeguard against the spread of the disease, then would the public demand that justice be done the impecunious sufferers, in the establishment, by the state, of institutions where, in the earliest stage of the infection, they might be placed and thus given all possible aid to recovery and the enjoyment of social and productive citizenship.

In alluding to smallpox, he said the modified virulence and the reduced power of infection had been seized upon by anti-vaccinationists and the ignorant as an argument against vaccination.

The association had been striving for many years for the establishment of a public health service, and the medical profession was to be congratulated that, at last, their efforts had been crowned with success. While all that was desired had not been granted, yet a substantial and, in many ways, a satisfactory organization had been effected. He congratulated Dr. Wyman on the enlarged opportunities presented to him to develop upon a scientific basis a service of varied functions which shall equal in original research and demonstration any similar service in the world.

REPORT OF COMMITTEE ON PUBLIC HEALTH LEGISLATION.

This was presented by the chairman, DR. U. O. B. WINGATE of Milwaukee, Wis. Representatives from various state boards of health and state quarantine officials met in Washington with the supervising surgeon-general of the Marine Hospital Service, and the matter was carefully considered, and finally a compromise was effected, changing the name of the Marine Hospital Service to that of the Public Health and Marine Hospital Service. A copy of the law was submitted with the report. The law provides for an annual conference of the health authorities of all the states and territories and the District of Columbia, and that it shall be the duty of the surgeon-general of the service to call a conference upon application of not less than five states or territorial boards of health, quarantine authorities, or state health officers. It was hoped that this measure provided a foundation upon which might be built up a national health service, such as the intelligence of the people and the age in which we were living demanded.

EXPERIMENTS IN DISINFECTION WITH FORMALDEHYD GAS.

DR. M. P. RAVENAL of Philadelphia read an exhaustive paper on this subject, in which he detailed his experimental work with this gas. He drew the following conclusions:

(1) "Formaldehyd is justly entitled to the high position which has been given to it as a disinfectant.

(2) "Special apparatus, while useful and convenient, is not absolutely necessary for the successful application of the gas.

(3) "The germicidal power of formaldehyd gas is dependent on certain factors which, as yet, are imperfectly understood. Other things being equal, moisture and temperature are the most important of these factors.

(4) "In practice every operation should be controlled by cultural experiment, and no room which has been exposed to infection should be considered as disinfected unless control cultures, exposed in various parts of said room, are shown to have been destroyed."

REPORT OF COMMITTEE ON DISINFECTION AND DISINFECTANTS.

In the absence of the chairman, this report was presented by HIBBERT W. HILL of Boston.

A careful examination of articles published both in America and in Europe had failed to reveal the discovery of any new disinfectant or process of disinfection of great practical value to public health officers during the last year.

As to gaseous or room disinfection, formaldehyd still held the first place in efficiency. There had been a return to a certain extent to the use of sulphurous acid, owing to its stronger action upon insect pests, but all the new experiments showed clearly that it was a far weaker disinfectant than formaldehyd, and could not be depended upon except in a few limited cases. Gaseous disinfection, as the great panacea for preventing the spread of contagion, had been considerably discredited by recent experiments, but the committee were strongly of the opinion that when properly carried out it was an important and effective aid in public health work, and would continue to be, and that formaldehyd was by far the best agent to use in carrying it out. In using formaldehyd two things should be provided for: First, a sufficiency of water in the air of the space to be disinfected; and, second, a very rapid disengagement of the gas. Most forms of apparatus failed in one or the other of those points. The work of Robinson and Hill, members of this committee, clearly showed that not only did efficiency depend upon them, but, by properly observing them, much time and material could be saved. The disinfection of the future must be simple, short and sharp.

REPORT OF THE COMMITTEE ON NATIONAL LEPROSARIES.

In this report, the chairman, DR. HENRY M. BRACKEN of St. Paul, Minn., said among other things, that after carefully studying facts it would appear that provision for the care of lepers in Canada was an inheritance rather than a product of legislation; that the care of lepers in Mexico began with the invasion of Cortes, and that the methods of caring for them had been but little, if at all, improved upon in that country since his time; that provision for the care of lepers in Cuba was made at an early date by a Jesuit with philanthropic tendencies. Of all the countries em-

braced in the association, the United States was the only one that had made no provision for its lepers. The commission appointed by the Marine Hospital Service recommended one or preferably two national leprosaria for the care of these unfortunates in the United States. It recommended the selection of sites covering broad areas in healthful localities, where the lepers could have unlimited out-of-door exercise and occupation. It recommended that these homes should be made attractive and comfortable, so that the unfortunate victims of this disease, instead of hiding their condition, might make it known and request admission to these public institutions.

With present knowledge of leprosy, and the methods employed in care of lepers, the committee advised that the resolution of last year be reaffirmed. This resolution, in substance, favored the establishment of national leprosaria, which might serve not only as a refuge for lepers, but also as a home and hospital, making their lives tolerable as far as possible, furnishing employment to those who were able to work, and giving skilled medical care to all cases, with the intent of possibly curing some, and making the road to death less wearisome and painful than it now was to others.

DANGERS TO THE PUBLIC HEALTH FROM ILLUMINATING AND FUEL GAS.

This report was read by the chairman of the committee, DR. SAMUEL H. DURGIN of Boston. In pursuing an inquiry into the danger to health by illuminating gas, it had been the purpose of the committee to consider not only the question of its poisonous effect as observed from the ordinary clinical standpoint, and of the frequency with which the people were exposed to the effects of their agent, but also to show, from carefully conducted experiments upon human subjects, just what physiological changes were produced by long and short exposures to small amounts of the gas, and to what extent the observed changes were continued or permanent. It was shown by investigations that the common condition of gas pipes and fixtures was very poor, the moderate small leaks very numerous, and that a moderate increase of pressure in the fixtures above the normal gas pressure produced leakage in eighty-nine per cent of all the houses examined. It was also shown that the number of fatalities from illuminating gas was not only large, but was increasing from year to year. In order to ascertain to what extent the medical profession in Boston had recognized cases of acute and chronic poisoning by illuminating gas, he sent out letters to twenty-two hundred physicians, asking for their personal experience in such cases. He received replies from 460 physicians; 246 of them reported no experience; the other 214 reported 1,025 cases of acute poisoning; 374 of these resulted fatally; 288 were found dead, and 86 lived from one hour to twelve months; 623 made complete recovery in periods varying from a few hours to three years; 28 made partial recovery, while under observation of from three weeks to twenty-one months.

The symptoms reported in the chronic cases were practically the same as those reported in the acute cases.

(Continued.)

AMERICAN ASSOCIATION FOR THE STUDY OF INEBRIETY.

THE THIRTY-SECOND ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF INEBRIETY was recently held in Boston at the Washingtonian Home, under the presidency of DR. L. D. MASON. Resolutions were adopted condemning the indiscriminate use of medicine for the alcohol and opium habits, and suggesting that institutions be licensed and inspected which are to care for inebriates, or victims of narcomania.

DR. L. D. MASON of Brooklyn read a paper on PATENT OR PROPRIETARY MEDICINES AS THE CAUSE OF EITHER THE ALCOHOL OR OPIUM HABIT OR OTHER FORM OF DRUG HABITUATION, AND SOME SUGGESTIONS AS TO HOW THE EVIL MAY BE REMEDIED AND THE PUBLIC PROTECTED. It was urged that a general campaign of education be insisted upon, and that an increasingly careful study be made of the underlying causes which lead up to the conditions under consideration.

DR. H. D. RODEBROUGH read a paper on the VALUE OF SURGERY IN CERTAIN CASES OF INEBRIETY. He urged the necessity of considering the physical side of the patient, and spoke of the good effects of simple surgical operations.

DR. EDWARD COWLES read a paper on LEGISLATION FOR THE CONTROL OF INEBRIETY. He drew attention to the English law on the subject, and spoke of the somewhat different conditions existing in the United States, where a probation system, longer confinement, establishing industrial colonies and similar ideas have influenced legislation. He urged that the probation system be made more useful, and that a better understanding be established between magistrates, probation officers and hospital authorities.

DR. S. B. ELLIOTT spoke on the subject of RESTRAINT AND MORAL MEASURES IN THE TREATMENT OF INEBRIETY. Dr. Elliott suggested the desirability of separating incurable from curable patients, and he insisted upon the medical rather than the criminal aspect of the subject.

DR. AGNES SPARKS read a paper on PLANS OF TREATMENT FOR WOMEN INEBRIATES.

THE HYDROPATHIC TREATMENT OF INEBRIETY was the subject of a paper by DR. C. A. SHEPHARD. Dr. Shephard insisted upon the very great value, for obvious reasons, of cleanliness for the preservation of general health.

DR. J. H. KELLOGG spoke on DIET IN THE TREATMENT OF INEBRIETY.

DR. J. W. MATTISON, in dealing with the subject of NARCOTIC ABUSES AND THE PUBLIC WEAL, spoke strongly against the wide sale of nostrums containing narcotic drugs. He urged the adoption of restrictive laws such as are in force in Germany.

DR. T. D. CROTHERS read a paper on INEBRIETY IN ANCIENT EGYPT AND CHALDEA, in which he showed the similarity between the situation regarding alcohol at that time and at the present day.

Other papers and remarks followed.

The following officers were elected: President, Lewis D. Mason, Brooklyn; first vice-president, Charles H. Shephard, Brooklyn; corresponding secretary and treasurer, T. D. Crothers, Hartford; recording secretary, J. J. Wagner, Greenwich.

THE BOSTON

Medical and Surgical Journal

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LORD LISTER AND MODERN SURGERY.

THE recent "Lister Jubilee Number" of the *British Medical Journal* (Dec. 13, 1902) celebrates the fiftieth anniversary of Lister's entrance into the medical profession (Dec. 9, 1852). This number is an interesting *Festschrift* in his honor, made up by contributions from Professor von Bergmann, M. Lucas-Championnière, Professor Durante, Professor von Mikulicz, Professor Bloch, Sir Hector Cameron, Professors Chiene and Watson Cheyne and others.

These gentlemen, with their interesting and valuable articles, unite in bearing testimony to the great debt which the medical and surgical professions, and through them the whole world, owe to Lister, the acknowledged founder of modern surgery.

From the time of the publication of his article "On a New Method of Treating Compound Fracture, Abscesses, etc., with Observations on the Conditions of Suppuration" (*Lancet*, March, 1867), the course of modern surgery has advanced with rapid strides to its present state of perfection. Whatever may have been his own inspiration, to Lister belongs the credit of creating a method of surgical technique, the far-reaching and beneficent effects of which he could hardly have imagined. His work and personality have been the source of inspiration which has led directly to the wonderful results of modern surgery.

America was not slow in adopting and carrying out the principles of wound treatment published in Lister's early contributions. We saw in the beginning great improvement in our results, even when the essence of antiseptic surgery was the use of carbolic acid in the protection of wounds from gross contamination, and in what we should now call crude preparations of hands, instruments and field.

The chief thing was the protection of the wound after it had been made, by means of irrigation with carbolic acid, and by dressings permeated with the same chemical solution. Although these methods, crude as they now seem, produced a marked improvement in immediate and in remote results, there were, nevertheless, many and inexplicable failures. The suppuration of clean wounds was not uncommon. Erysipelas, pyemia and other infections, occasionally occurred. Breast amputations had a mortality of 6 or 8%, and other severe and well-established operations a like proportion. There were numerous instances of carbolic acid poisoning; some of them fatal. These disasters were frequent enough as late as 1876 to make many surgeons skeptical as to the value of the whole method. Others carried out the antiseptic principles after a fashion, but perfunctorily,—compelled to adopt the method perhaps by the force of surgical opinion. Such operators met with frequent failures. The early recognition of the importance of cleanliness, and the adoption of thorough mechanical measures for insuring that cleanliness, without, however, a realization of its scientific value, made antiseptic methods still more successful and attractive. The fact is, that in Lister's early suggestions there lay concealed the essence of modern surgery,—the prevention of wound infections by micro-organisms. In his early work lay the conception that the disasters of wound contamination were owing to minute living bodies, and that primary healing would take place in all wounded tissues from which these bodies could be effectually excluded. The truth of this conception, so crudely acted upon in the beginning, so brilliantly established in the end, has led directly to the present high position of surgery as a science.

Lister's original method of protecting wounds by destroying every poisonous thing that might come in contact with them, whatever that thing might be, tended toward the demonstration of the germ theory of infections. To Pasteur Lister felt himself indebted for the suggestion that the means of putrefaction were transmitted to wounds through contact with air, itself laden with contaminating material. The early methods of protecting wounds from this contamination show how much the air was supposed to have to do with infections. Compound fractures differed in their healing from simple fractures only through putrefaction changes induced by contact with the air. Lister's first endeavor, in compound fractures, was to substitute artificially a covering to take the place of skin, which covering should be itself capable of destroying, or at least of neutralizing, the bad effect of poison-laden air. Hence the use of carbolic lotions, "protective" carbolic gauze, and the like. To make an antiseptic en-

vironment by destroying all air-borne poisons about the wound, a spray of carbolic acid was made mechanically to envelop, by a wide margin, the field of operation, both during the operation itself and during all subsequent dressings. These details of technique, although efficacious in destroying easily accessible and easily destructible micro-organisms, and therefore productive in the main of primary union in the wounds, were, as bacteriology has abundantly demonstrated, directed chiefly against the least of the sources of infection, sources, indeed, which are now practically neglected. They pointed in the right way, however, and, as their direct result, the right path was eventually established. The suggestion of poisonous contact, made by Lister, whatever the nature and source of the poison, was the germinating idea which has produced such marvelous fruit in the development of surgery. The rapid progress of bacteriology soon gave Listerism a scientific foundation, upon which it has been possible to raise surgery to the height of an applied science.

We have been able to observe closely the evolution of modern surgery from about the time when Lister himself visited Boston (1875). A case of excision of the knee, treated by constant irrigation with a solution of carbolic acid, seemed especially to interest him. The operation had been performed with every antiseptic detail then known, in spite of which, however, there was extensive infection of the wound and abundant discharge of pus. The wound, externally and internally, was being constantly irrigated by means of wicks through which ran a continuous stream of carbolic solution. We can vividly recall our disappointment at the wound infection, as well as its apparently inexplicable origin. The infection, as we now know, was owing to the imperfect methods of sterilization, by which hands, instruments, sponges and field were prepared, as demonstrated since then time and again in the bacteriological laboratory. Once infected, the wound in this case went through its long process of suppuration little influenced by the method of constant irrigation.

Lister's visit to Boston did much to stimulate enthusiasm for the application of his methods, and yet, here as elsewhere, these methods were undertaken by many with doubt and with hesitation. Careful observers, carrying out eagerly and faithfully the details of Lister's method were delighted to find, in spite of occasional failures, marked improvement in immediate and remote results. At the end of a few years it was recognized by all that the outlook in operative surgery was indeed a bright one.

Instead of the tedious visits of the surgeon, who, turning down the poultices, inspected every

wound, and, bistoury in hand, sought, too often successfully, for pus, the visit became a stroll through wards with clinical charts. The improvement was indeed astonishing; and yet here and there a wound infection would occur, which, while confounding the surgeon, stimulated him to renewed efforts at wound protection. We remember the painstaking investigations after every failure in Listerism. These investigations, often demonstrating satisfactorily errors in technique, still more often produced only negative testimony. From one precaution to another surgeons groped blindly, abandoning one as useless or dangerous, and adopting another as remedying, theoretically at least, some previous defect. The most radical departure from the original methods, in this country certainly, was in the abandonment of the spray and in the substitution of corrosive sublimate for carbolic acid. We can recall the great frequency of black urine and other signs of carbolic acid poisoning; but with the substitution of other chemicals came other disadvantages in the form of local and systemic irritations.

Bacteriology, as an exact science, developed, partly at least, under the stimulation of surgical needs, gave to the deductions of Lister a basis which has made operative surgery what it is to-day. It was only when surgeons began to see, under their own eyes, germ colonies growing upon suitable media — and that in spite of such methods of preparation and disinfection as many in the beginning called absurd — that the present scientific method of operative procedure came into existence. Not until bacteriology had shown the necessity of prolonged sterilization with heat, whenever possible, and with chemicals whenever heat was impracticable, did operative surgery go through its first and real purification by fire.

The marked success attending external operations — upon the breast, the extremities — led to bolder and more frequent operations upon the abdominal viscera. Ovariectomy, originally the only abdominal operation, excepting, perhaps, strangulated hernia, becomes, in the hands of experienced operators, a procedure of slight mortality. From extirpation of ovarian tumors, the success of antiseptic surgery led rapidly to extirpations of the kidney, the spleen, gastric and intestinal tumors, and then back to conservative operations, by which benign neoplasms are removed from the ovary or uterus as freely as from the breast. The splendid progress of abdominal surgery alone excites wonder even among those of us who have been engaged in it from the beginning of antiseptic methods. From abdominal it was but a step to thoracic, cranial and spinal surgery.

In thus briefly reviewing the extraordinary achieve-

ments of modern surgery, we are again brought to consider the inspiration from which they had their direct origin. From the days of sole reliance upon the destructive antiseptics of carbolic acid and ordinary cleanliness to the present days of scientific aseptic detail and environment, we have watched with consuming interest the remarkable progress of surgery; and we, who have been through it all, give to Lister the credit of founding modern surgical science. We have lived to see his methods elevated and refined; his deductions reduced to a science, and his results brought, as it seems to us, as near perfection as they ever can be. That he, the founder, — the "master," as his followers love to call him, — should have lived to see the wonderful harvest, the whole medical and surgical world now hastens to congratulate him.

THE RELATIVE IMMUNIZING VALUE OF HUMAN AND BOVINE VACCINE VIRUS.

WITHIN the past half century a very decided change has taken place in the methods of procuring vaccine lymph, a change which has been introduced very largely in consequence of the possible occurrence of the inoculation of other diseases which are communicable from man to man by means of inoculation. Notwithstanding the fact that such transference of other diseases was an occurrence of the rarest kind, the popular demand for a change was sufficient to bring about the gradual introduction of lymph from the calf or heifer.

Another reason for the change existed in the rapid increase of the population of large cities, whereby during sudden outbreaks of smallpox much greater quantities of vaccine material were demanded than could possibly be obtained from the arms of infants. The method of procuring vaccine from the heifer was practised at Naples as early as 1810 by Galbiati and continued by his pupil Negri, and was introduced into France by Lanoix, who went to Naples to study the method in 1864. It was employed to a limited degree in the United States during the Civil War for the production of vaccine material for the army¹ and still more generally by Dr. H. A. Martin in 1871. The question has recently arisen whether the bovine lymph produces an immunity from smallpox which is as thorough and lasting as that which was formerly produced by the Jennerian method of vaccination from the arms of healthy infants.

At the meeting of the American Public Health Association last year, a committee was appointed to report upon the comparative value of these two methods of producing vaccine, with reference to the immunizing power of the product obtained. This

¹ See report of Surgeon Milbau, in *Medical and Surgical History of the War of the Rebellion*, vol. III.

committee reported at the meeting at New Orleans, a digest of the report being presented in another column.

While the report contains some very good suggestions as to the causes of abnormal results of vaccination during the recent unusual prevalence of smallpox in this country, no very definite conclusions appear to have been reached as to the relative value of these two kinds of vaccine lymph. Undoubtedly this defect is due to the absence of information or of observations on a large scale upon this subject. If it were possible to compare the results obtained in two thoroughly vaccinated nations, one vaccinated with humanized, and the other with bovine lymph, an answer to the question might be expected, but such nations do not exist.

Germany is the only large nation wholly vaccinated with bovine vaccine lymph at the present day, although some neighboring countries are manifesting a disposition to adopt German methods.

In England the practice of employing humanized lymph for the greater portion of the vaccinations prevailed until a comparatively recent period. Moreover, the English population is not thoroughly vaccinated, in consequence of the general neglect of re-vaccination.

It is, however, true in regard to Germany that as the population became more and more thoroughly vaccinated after the enactment of the compulsory law of 1874, smallpox has gradually disappeared, almost the only cases which have occurred being those of unvaccinated immigrants, or those of a few who had in some way escaped vaccination.

In this connection the following figures are suggestive as showing the rapid displacement of humanized lymph in Germany in the public vaccinations:—

PERCENTAGE OF VACCINATIONS WITH BOVINE LYMPH IN GERMANY, 1879-1898.*

<i>Years.</i>	<i>Per cent of vaccinations with bovine lymph.</i>	<i>Years.</i>	<i>Per cent of vaccinations with bovine lymph.</i>
1879	2.6	1889	89.0
1880	3.3	1890	93.0
1881	4.0	1891	96.8
1882	7.1	1892	98.5
1883	11.2	1893	98.9
1884	19.1	1894	98.9
1885	33.1	1895	99.85
1886	54.2	1896	99.88
1887	68.4	1897	99.95
1888	77.4	1898	99.96

It appears from the foregoing figures that during the last four years nearly all the vaccinations in Germany have been made with bovine lymph. These vaccinations have averaged more than two and a half millions in number yearly since 1890, and the

*From the annual reports of the Imperial Board of Health relating to vaccination, 1879-1898.

positive success of this national system of vaccination is too well assured to admit of doubt.

Another peculiarity of the German system is that of public control of the entire production of vaccine lymph. The Imperial Board of Health assumes a general control over the whole system, the number of separate vaccine plants being at present twenty-two in as many separate cities. Each one furnishing the requisite vaccine material for the population, not only of the city in which it is located but also for the entire neighboring district, so that the product of these twenty-two establishments suffices for the entire population of the empire.

The example thus furnished by Germany has undoubtedly had a favorable effect upon contiguous countries, especially Austria and Italy, in which the conditions as to vaccination have considerably improved in recent years.

THE LORENZ OPERATIVE PROCEDURES.

DR. LORENZ has come and gone, has brought enthusiasm and stimulation to orthopedics and to the Children's Hospital in Boston, and has carried away, we hope, a pleasant memory of Boston's hospitality. The general program of his visit was given in the last issue of the JOURNAL.

The Lorenz method of procedure in reducing congenital dislocation of the hip is not new or untried in Boston. We have before referred to it in the editorial columns of the JOURNAL of Oct. 23. The recent visit, however, has brought out many new and important points in fixation and after-treatment. The steps of the operation are as follows:

(1) With the patient lying on the back, the leg and thigh of the affected limb are flexed each to 90°, the thigh is worked up and down in a line perpendicular to the table. This breaks up adhesions round the head of the femur in its unnatural position. During this and the subsequent steps the pelvis is held firmly by the assistant.

(2) With leg and thigh extended, the whole limb is abducted in a plane parallel to the table and worked back and forth to tear the inferior adhesions of the joint capsule and to some degree to stretch the adductor muscles.

(3) With leg flexed and thigh about 45° from the table, the thigh is repeatedly abducted with great force, each excursion bringing the thigh outwards nearer the table, stretching and tearing the adductor group, while at the same time vigorous blows and kneading of the adductor muscles near their origins on the ischium and symphysis serve further to tear their fibers.

(4) With leg extended, the whole limb is forcibly

and repeatedly flexed on the trunk, the foot approximates the face — this to break up and stretch adhesions and fibers in the posterior pelvi-femoral group.

(5) With the patient lying on the unaffected side, the thigh is forcibly hyperextended to stretch anterior adhesions and muscles.

(6) With the patient again on the back, the leg and thigh are flexed and the thigh is strongly rotated again and again.

(7) With a wedge-shaped block under the great trochanter as a fulcrum, the flexed thigh is abducted with great force, this serving to break the last adductive fibers and to thoroughly release the head of the bone.

(8) Acute flexion and outward rotation of the thigh should cause reduction of the dislocation with a distinct sound as the bone slips into place.

(9) With the bone held in place strong abduction now shows the adductor group to be again shortened, and they must be stretched still farther till they no longer have resiliency enough to tend to throw the head of the femur out of the acetabulum.

(10) With the bone still in place any contractures of the hamstrings which may now have appeared should be stretched.

(11) Wadding and bandage are applied in such a manner that the head of the femur is held tight against the acetabulum by turns round the knee and opposite side of the pelvis, and the thigh in extreme abduction (90°) and to extreme hyperextension. Over this a thigh plaster-of-Paris bandage is applied. As Dr. Lorenz puts it, a child with both hips thus put up "looks like a jumping-jack after you pull the string."

The plaster is kept on six or seven months. The child is encouraged, after a few days, to walk and jump about on both legs, a high shoe making up for lack of relative length on the affected side. The constant impact of femur against acetabulum obtained by the jar of walking is an important factor towards final success.

Dr. Lorenz feels that a good functional, as well as anatomical, result is only likely in cases between three and seven years. The oldest case he has treated is twenty-three years. Where he fails to reduce the hip, the muscle-stretching followed by long fixation of the thigh in the manner already described, gives a fair functional result. In one case here in Boston, that of a boy nine and a half years of age, he was unable to get the head into the acetabulum.

LECTURES ON THE PHYSICIAN'S RELATION TO THE COMMUNITY.

WE have already called attention to the fact that the students of the Harvard Medical School have, on

their own initiative, arranged for a series of evening lectures to be given by prominent men, not necessarily physicians, on the general topic of the relation of the physician to the community. This action is noteworthy from several points of view. It shows, in the first place, a growing interest among students of medicine in the broader aspects of their professional work and in the responsibilities which it is sure to entail. Such a movement on the part of medical students, popularly supposed already to be overburdened with lectures, could hardly have occurred ten years ago. To those who have watched the development of the last few years, however, it comes as no great surprise. The students are certainly becoming more and more independent in thought, and are standing more in judgment upon the work which they are called upon to do and upon the teachers who direct it. The results have been in every way salutary both as regards teachers and students.

The desire of a large body of students to provide certain lectures for themselves furthermore points toward a definite need, which they are feeling is not supplied them in the regular course. They want, broadly speaking, to learn from men of experience of their future social and ethical relations to the communities in which they may happen to be placed. This is evidence that they receive no such instruction in their ordinary undergraduate work, which, we believe, is the fact. This leads us to speak of a distinct lack in medical education, and that is, the direction of students in their relation to patients and others whom they must later come in contact with in their professional work. No attempt is made to teach the ethics of medicine except by precept and example, a good but not a sufficient method. Students of medicine certainly need instruction in this subject, a fact which the Harvard students have appreciated and have taken measures to accomplish by the establishment of these evening lectureships.

MEDICAL NOTES.

FRENCH CANADIAN FAMILIES.—A Quebec shoe dealer actually received this order from a French Canadian; its form of expression is quaint and it illustrates the prolific French Canadian families.

Dear Mister, you will put some shoe on my little families like this, and send by Sam Jameson, the Carrier:

"One man, Jean St. Jean (me) 42 years." "One woman, Sophie St. Jean (she) 41 years." "Hermes & Lenore, 19 years; Honore, 18 years; Celina, 17 years; Narcisse, Octavia & Phyllis, 16 years; Olive, 14 years; Philippa, 13 years; Alexandre, 12 years; Rosina, 11 years; Bruno, 10 years; Pierre, 9 years; Eugene, we loss him —; Edouard & Glisa, 7 years; Adrien, 6 years; Camille, 5 years; Zael, 4 years; Joseph, 3 years; Moise, 2 years; Muriel, 1 year; Hilaire, *he go barefoot*: How much."

NOVELIST'S MEDICINE.—A recent author introduces the distinguished German physician, who is consulted by one of the leading characters in the book, as the author of "Kasichte Ausartung der Ueberrnieren." From the description of the death scene from this weird disease, it seems something like angina pectoris.

NEW BUILDING FOR RUSH MEDICAL COLLEGE.—Senn Hall, the building recently added to the equipment of Rush Medical College, Chicago, largely through a bequest of Dr. Nicholas Senn, has recently been dedicated. Sir William Hingston, professor of clinical surgery in Laval University, Montreal, delivered the dedicatory address. Senn Hall was erected at a cost of \$130,000.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Dec. 31, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 32, scarlatina 40, measles 9, typhoid fever 19, smallpox 16.

HOSPITAL FOR TUBERCULOSIS AT NEW HAVEN, CONN.—It is proposed to build a small hospital for the treatment of tuberculosis, on high ground near New Haven.

REPORT OF MASSACHUSETTS HOSPITAL FOR EPILEPTICS.—In the annual report of the Massachusetts Hospital for Epileptics at Monson, the trustees ask for a group of farm buildings which will relieve congestion in the institution buildings proper, at an estimated cost of \$50,000. There were, on Sept. 30, 377 patients in the institution, against 270 a year ago. The per capita weekly cost of maintenance was \$4.31.

BEQUESTS TO HOSPITALS.—By the will of the late Mrs. Mary Longfellow Greenleaf of Cambridge, Mass., the following bequests among many others are made: St. Luke's Home for Convalescents, Roxbury, \$5,000; kindergarten of the Perkins Institute for the Blind, \$5,000; Cambridge Hospital, for a free bed, \$5,000; Maine General Hospital for a "Rev. Samuel Longfellow free bed," \$5,000; Cambridge Home for Aged People, \$5,000; Old Ladies' Home, Portland, \$2,000; Female Orphan Asylum, Portland, \$2,000.

By the will of Lucy Richmond Reed the following institutions are beneficiaries: Five thousand dollars each to the Convalescents' Home of the Children's Hospital at Wellesley; the Willard Hospital for Dipsomaniacs at Bedford; the Channing Home for Consumptive Women on McLean Street, and the Sharon Sanatorium.

ARRESTS FOR SPITTING.—Through the agency of the Board of Health a number of persons have recently been arrested in Boston for spitting in street cars and railroad stations.

BEQUEST TO DARTMOUTH MEDICAL COLLEGE.—By the will of Dr. Edward K. Baxter, late of Sharon, Vt., \$5,000 is left to the Dartmouth Medical College, of Hanover, N. H., with the request that the income be used in the endowment of a free bed in the new Mary Hitchcock Hospital.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending Dec. 27 was 189, as against 176 the corresponding week last year, showing an increase of 13 deaths, and making the death-rate for the week 16.81. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 35 cases, 3 deaths; scarlatina, 28 cases, 3 deaths; typhoid fever, 18 cases, 5 deaths; measles, 8 cases, no deaths; tuberculosis, 8 cases, 15 deaths; smallpox, 13 cases, 6 deaths. The deaths from pneumonia were 31, whooping cough 2, heart disease 19, bronchitis 7, marasmus 1. There were 14 deaths from violent causes. The number of children who died under one year was 27; under five years 46; persons more than sixty years 42; deaths in public institutions 60.

NEW YORK.

THE CORONER.—At a meeting of the Medico-Legal Society held Dec. 17 a resolution was adopted favoring the abolition of the office of coroner, and a committee, of which Dr. Stephen Smith is chairman, was appointed to bring the matter to the attention of the legislature. It is understood that the committee is of the opinion that the medical duties now performed by the coroners should be assigned to the Health Department, and their legal duties to the civil magistrates.

A CONTINGENT DONATION.—At a dinner given to the medical staff of the Methodist Episcopal (Seney) Hospital in Brooklyn, on Dec. 15, in celebration of the fifteenth anniversary of the institution, William Halls, Jr., vice-president of the board of managers, made the announcement that he would contribute \$125,000 for the completion of the hospital buildings, on condition that other subscriptions to the amount of \$500,000 shall be secured by June 1, 1903. Such subscriptions, he said, should be payable in a reasonable time after that date, and, after the payment of certain debts and providing for a possible deficiency of \$15,000 for three years, should be devoted to increasing the endowment fund (now \$425,000) to at least \$850,000.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, DEC. 20, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Scarlet fever.	
New York . . .	3,065,352	1,237	357	11.80	13.90	3.55	1.45	.88	
Chicago . . .	1,862,828	623	178	24.35	16.33	2.89	5.87	.80	
Philadelphia . .	1,349,624	585	149	17.94	14.22	2.43	2.61	.19	
St. Louis . . .	608,717	—	—	—	—	—	—	—	
Baltimore . . .	525,330	211	50	18.48	19.48	1.90	.47	—	
Cleveland . . .	411,826	—	—	—	—	—	—	—	
Buffalo . . .	378,742	—	—	—	—	—	—	—	
Pittsburg . . .	341,401	188	89	21.00	24.46	—	5.07	.72	
Cincinnati . . .	332,032	—	—	—	—	—	—	—	
Milwaukee . . .	304,975	—	—	—	—	—	—	—	
Washington . . .	289,537	—	—	—	—	—	—	—	
Providence . . .	185,870	70	21	22.24	25.70	4.28	2.85	—	
Boston . . .	588,730	229	66	19.21	20.52	1.30	.44	—	
Worcester . . .	127,337	35	16	17.14	11.43	—	2.85	—	
Fall River . . .	111,872	57	32	17.29	26.28	3.51	—	3.51	
Lowell . . .	99,574	25	12	8.57	34.28	—	—	—	
Cambridge . . .	96,334	24	13	14.70	29.41	—	5.88	—	
Lynn . . .	71,144	21	8	23.81	—	14.29	—	—	
Lawrence . . .	67,275	20	11	20.00	—	—	—	—	
Springfield . . .	66,854	—	—	—	—	—	—	—	
Somerville . . .	65,882	24	4	41.66	13.33	6.67	3.33	8.33	
New Bedford . .	65,574	36	16	25.00	33.33	2.78	2.78	8.33	
Holyoke . . .	48,065	7	3	14.30	38.00	—	—	—	
Brookton . . .	43,208	18	2	11.11	—	—	5.65	—	
Haverhill . . .	40,392	17	4	—	56.98	—	—	—	
Salem . . .	36,567	20	4	15.00	10.00	—	10.00	—	
Newton . . .	36,336	4	1	—	50.00	—	—	—	
Malden . . .	35,390	10	5	10.00	40.00	10.00	—	—	
Chelsea . . .	35,264	11	5	18.18	9.09	—	—	—	
Fitchburg . . .	33,848	14	5	21.42	14.28	—	—	—	
Taunton . . .	32,750	13	8	25.00	25.00	—	8.33	—	
Everett . . .	27,114	8	2	27.50	—	—	8.33	—	
North Adams . .	26,583	9	3	22.22	—	—	—	—	
Gloucester . . .	26,121	10	2	40.00	—	30.00	—	—	
Quincy . . .	25,307	14	3	31.42	—	7.14	—	—	
Waltham . . .	24,612	8	2	12.50	—	—	—	—	
Pittsfield . . .	22,311	9	1	—	—	—	—	—	
Brookline . . .	21,679	—	—	—	—	—	—	—	
Chicopee . . .	20,390	5	2	—	—	—	—	—	
Medford . . .	20,014	6	—	16.67	—	—	—	—	
Northampton . .	19,460	4	0	—	—	—	—	—	
Beverly . . .	14,814	3	—	—	33.33	—	—	—	
Clinton . . .	14,645	3	—	—	33.33	—	—	—	
Newburyport . . .	14,478	7	0	14.30	—	—	—	—	
Woburn . . .	14,285	—	—	—	—	—	—	—	
Leominster . . .	13,953	—	—	—	—	—	—	—	
Hyde Park . . .	13,858	—	—	—	—	—	—	—	
Marlboro . . .	13,609	3	2	66.67	—	33.33	—	—	
Melrose . . .	13,384	4	1	25.00	—	—	—	—	
Westfield . . .	13,038	2	—	—	—	—	—	—	
Attleboro . . .	12,846	—	—	—	—	—	—	—	
Adams . . .	12,813	—	—	—	—	—	—	—	
Milford . . .	12,516	—	—	—	—	—	—	—	
Frammingham . .	12,109	2	—	50.00	—	—	—	—	
Peabody . . .	11,957	—	—	—	—	—	—	—	
Revere . . .	11,894	5	1	60.00	30.00	—	—	—	
Gardner . . .	11,544	—	—	—	—	—	—	—	
Weymouth . . .	11,337	0	0	—	—	—	—	—	
Southbridge . . .	10,838	8	2	27.50	—	13.50	—	—	
Watertown . . .	10,600	0	—	—	—	—	—	—	
Plymouth . . .	10,336	—	—	—	—	—	—	—	

Deaths reported, 3,543; under five years of age, 1,020; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 614, acute lung diseases 587, consumption 244, scarlet fever 24, whooping cough 23, cerebrospinal meningitis 7, smallpox 18, erysipelas 7, measles 18, typhoid fever 88, diarrheal diseases 83, diphtheria and croup 96.

From whooping cough, New York 6, Chicago 5, Philadelphia 5, Baltimore 1, Pittsburg 1, Boston 4, Taunton 1. From measles, New York 7, Chicago 1, Baltimore 5, Pittsburg 2, Fall River, Lawrence and Salem 1 each. From erysipelas, New York 4, Chicago, Philadelphia and Boston, 1 each. From smallpox Pittsburg 10, Boston 6, Everett and Revere 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,830, for the week ending Dec. 6, the death-rate was 17.2. Deaths reported 4,902; acute diseases of the respiratory organs (London) 370, whooping cough 91, diphtheria 82, measles 200, smallpox 9, scarlet fever 66.

The death-rate ranged from 6.6 in Coventry, to 25.5 in Liverpool; London 17.1, West Ham 19.3, Brighton 12.6, Portsmouth 12.0, Southampton 14.0, Plymouth 18.7, Bristol 21.7, Birmingham 18.2, Leicester 10.1, Nottingham 19.1, Bolton 18.0, Manchester 18.5, Salford 19.3, Bradford 18.1, Leeds 16.3, Hull 23.2, New Castle-on-Tyne 22.9, Cardiff 18.8, Rhondda 12.3, Sheffield 15.6, Hanley 16.7.

METEOROLOGICAL RECORD

For the week ending Dec. 20, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.		Daily mean.	Maximum.	Minimum.		8.00 A.M.	8.00 P.M.	Daily mean.		8.00 A.M.	8.00 P.M.	
S. . .	14	30.48	16	28	10	90	68	79	N	NW	17	11	N. O. T.
M. . .	15	30.70	23	30	14	63	94	78	NW	NE	10	4	O. O. O.
T. . .	16	30.17	42	54	29	96	97	96	SE	SW	14	25	R. R. .15
W. . .	17	29.78	42	48	35	79	63	71	W	SW	15	14	O. O. .44
F. . .	18	29.70	35	40	30	84	77	80	SW	NW	17	23	O. O. O.
S. . .	19	29.89	38	46	29	69	70	80	SW	W	18	18	O. O. O.
S. . .	20	30.37	34	40	29	60	64	62	NW	SE	14	5	C. C. O.
31	30.16		40	25		77							.39

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. 31—Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING DEC. 27, 1902.

D. N. BERTOLETTE, medical inspector. Ordered to duty as fleet surgeon of the Pacific Station.

E. H. GREEN, medical inspector. Detached from duty as fleet surgeon, Pacific Station, and ordered to the "Wisconsin."

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DEC. 25, 1902.

PARKER, H. B., assistant surgeon. Granted leave of absence for fourteen days from Dec. 22. Dec. 20, 1902.

WHITE, M. J., assistant surgeon. Granted leave of absence for fourteen days from Dec. 23. Dec. 19, 1902.

LLOYD, B. J., assistant surgeon. Relieved from duty at San Francisco Quarantine and directed to report to Surgeon A. H. Glennan, San Francisco, Cal., for duty. Dec. 23, 1902.

BALLARD, J. C., acting assistant surgeon. Granted leave of absence for five days from Dec. 23. Dec. 23, 1902.

GOLDSBOROUGH, D. W., acting assistant surgeon. Leave of absence for three weeks granted Acting Assistant Surgeon Goldsborough by Department letter of Nov. 22, 1902, amended so that said leave shall be for twelve days only. Dec. 22, 1902.

LEONHARDT, S. C., acting assistant surgeon. Granted leave of absence for one month from Jan. 1. Dec. 17, 1902.

RECENT DEATHS.

DR. FREDERICK L. BRADY, thirty years of age, died in St. Luke's Hospital, New York, from typhoid fever, on Dec. 24. He was a graduate of the medical department of Columbia University, and during the Spanish-American War was a member of Troop B, of Roosevelt's Rough Riders.

HENRY N. JONES, M.D., died at Kingston, Mass., last week. He was born in Epping, N. H., Oct. 15, 1815, and studied medicine at Dartmouth Medical College. He began to practise medicine in 1840 in Canaan, N. H., and removed to Kingston in 1849, where he continued to practise until the current year. He was a member of the Massachusetts Medical Society and of the Plymouth District Medical Society.

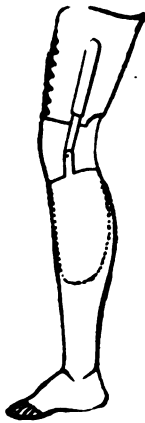
SOCIETY NOTICE.

AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE. —The American Association for the Advancement of Science held its fifty-second annual meeting in Washington, D. C., beginning Dec. 20.

BOOKS AND PAMPHLETS RECEIVED.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. B. M. Landis, M.D. Vol. IV. December, 1902. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

Twentieth Century Practice, an International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D. In twenty-one volumes. Vol. XXI, Supplement. Illustrated. New York: William Wood & Co. 1903.



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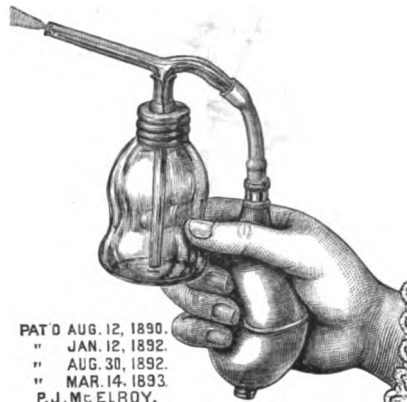
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*Third Year.—*Theory and Practice, Clinical Medicine, Surgery, Clinical Surgery, Obstetrics, Pediatrics, Dermatology, Neurology, Gynecology and Mental Diseases.

Fourth Year.—Required Studies: Clinical Medicine, Clinical Surgery, Ophthalmology, Otolaryngology, Orthopedics, Legal Medicine, Syphilis and Hygiene. *Elective Studies:* Ophthalmology, Otolaryngology, Orthopedics, Gynecology, Dermatology, Neurology, Bacteriology, Physiology, Physiological and Clinical Chemistry, Hygiene, Operative Surgery, Operative Obstetrics, Anatomy, Embryology, Clinical Microscopy.

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THE BOSTON Medical and Surgical JOURNAL

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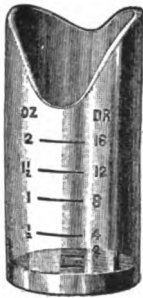
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Original Articles.

THE MALIGNANCY OF JOINT TUBERCULOSIS, ILLUSTRATED BY A SERIES OF FORTY-SEVEN CASES.¹

BY CHARLES F. PAINTER, M.D., BOSTON.

I HAVE chosen this title because I believe that a so-called healed tuberculous bone lesion is a constant menace to its possessor. This conclusion has been reached from a consideration of the following facts:

(a) In our metropolitan communities large numbers of children have been treated during the past thirty years at the children's hospitals.

(b) Our textbooks would lead to the belief that a large proportion get well with certain more or less crippling deformities.

(c) We are coming to recognize errors in the diagnosis of the character of some joint lesions formerly regarded as tuberculous which removes from this category a considerable number of the best results, already doubtless classified among the cured cases. These patients, coming from a station in life that naturally patronize public dispensaries, do not present themselves in the proportion they should among the patrons of clinics for other diseases. They are not much in evidence in the street, in the schools or other public places. They cannot conceal their deformities, as a rule, and a fair inference is that they must either become incapacitated from association with their fellows or else succumb to some other or their old disease.

Obviously, then, we are not to look for these cases in general clinics in numbers sufficiently large from which to draw conclusions.

During the past seven or eight years at the orthopedic clinic of the Carney Hospital a considerable number of adults with tuberculous joint diseases have presented themselves (about 139 cases of Pott's disease, 180 of hip and a lesser number in the smaller joints). By far the greater proportion of these were patients with disease, active from the outset, referred from other clinics where there were no facilities for treatment, or age debarred them from further attendance. A much smaller proportion were primary in adult life and came directly for their first treatment. A very considerable number came to begin treatment a second time, after a greater or lesser interval of health.

It is to this type of the disease that I have ascribed the term malignant. The pathologist recognizes among tumors a variety that manifest a tendency to recurrence after removal, either in the local scar or by metastasis, or both. There are other reasons for the classification of tumors, depending on their morphology, but in a broad, general way the division founded on the above-mentioned phenomenon has gained general acceptance. The pathologist also recognizes certain inflammatory tumors and classifies them under the head of infective granulomata, and in this classification tuberculosis is placed. The recent strife which has been going on over the infective character of

carcinoma is hardly passed and is by no means settled.

I will not attempt to justify this title, then, on pathological, but chiefly on clinical, grounds.

MALIGNANCY OF BONE TUBERCULOSIS.

No.	Sex	Age	Disease	Onset	Duration	Treatment	Alone	Emancipation
1	M	41	Pott's	1½ yrs.	12	Braces	No	21 yrs later
2	M	30	Hip (R)	12 yrs		do	Yes	3 yrs "
3	M	27	T.A. (L)	17 yrs	5 yrs	Plaster Spiral	Yes	5 yrs "
4	M	33	Hip (L)	2 yrs	5 yrs	Spica Crutches	Yes	21 yrs "
5	M	27	T.A.	19 yrs	1½ yrs	Plaster	Yes	6½ yrs "
6	F	50	Pott's	19 yrs	15 yrs	Braces	Yes	6 yrs "
7	F	54	T.A. (L)	3½ yrs	2 yrs	None	Yes	17 yrs "
8	M	25	Pott's	5 yrs		Desultory	Yes	10 yrs
9	F	41	Hip (D)	5 yrs		Spica-desultory	Yes	3 yr interval
10	F	26	Hip	2½ yrs		None	Yes	15 yrs later
11	M	18	Pott's	2 yrs	6 yrs	Bed.Braces	No	10 yrs "
12	M	18	Pott's	Early years		None	No	11 yrs "
13	M	22	Hip (D)	17 yrs	6 mos.	Crutches	No	4½ yrs "
14	M	21	Hip (D)	2½ yrs		Child Hosp.	Yes	12 yrs "
15	M	19	Hip (D)	1½ yr		Apparatus	Yes	10 yrs "
16	F	25	T.A.	8 yrs	5 yrs	Apparatus	No	9 yrs "
17	M	26	Hip	3 yrs	3 yrs	—	Yes	18 yrs "
18	M	39	Hip	Fistula	15 yrs	—	No	12 yrs "
19	M	17	Pott's	15 mos.	13½ yrs	Ch. Hosp.	Yes	3 yrs "
20	M	47	Cornuenter	Infancy	13 yrs	—	Yes	30 yrs "
21	M	23	Pott's	4 yrs	6 yrs	Apparatus	Yes	9 yrs "
22	M	27	Pott's	22 yrs		Apparatus	Yes	4 yrs "
23	F	26	Hip	13 yrs	13 yrs	None	Yes	13 yrs "
24	M	22	Hip	4 yrs	10 yrs	None	Yes	8 yrs "
25	M	20	Pott's Hip	7 yrs		Apparatus	No	9 yrs "
26	M	40	Hip	15 yrs		No apparatus	No	28 yrs "
27	F	19	Hip	Several yrs ago		do	Yes	Several years
28	F	28	Pott's	3 yrs		Apparatus	No	2½ yrs later
29	M	21	Carabitiun	Small boy		No apparatus	Yes	19 yrs "
30	F	16	Pott's	Infancy		do	Yes	12 years "
31	M	16	Pott's	6 yrs		Apparatus		8 years "
32	M	41	Hip	11 yrs		Crutches only	Yes	25 yrs "
33	F	35	T.A.	9 yrs		Apparatus	Yes	20 yrs "
34	F	28	Pott's	5 yrs		No apparatus	Yes	14 yrs "
35	M	35	Hip	5 yrs		None adequate	Yes	20 yrs "
36	M	28	T.A.	11 yrs		do	Yes	10 yrs "
37	F	22	Hip	Small child		Apparatus	Yes	17 yrs "
38	F	22	Hip	10 yrs		do	Yes	7 yrs "
39	F	21	Hip	14 yrs		do	Yes	
40	M	24	T.A.	"As a child		Plaster	Yes	4 yrs "
41	M	16	T.A. (R)	7 yrs	6 mos	Not stated	No	8½ yrs "
42	F	17	T.A.	7 yrs		Child Hosp.	Yes	9½ yrs "
43	M	31	Pott's	7 yrs		Child Hosp.	Yes	24 yrs "
44	F	25	T.A.	17 yrs		Not Stated	No	7 yrs "
45	F	20	Shoulder (B.)	Hip at 3 yrs		Apparatus	Yes (Hip)	17 yrs "
46	M	27	Pott's	6 mos.		Apparatus (to 18)	Yes	9 yrs "
47	F	48	Pott's	18 yrs		Braces & Jacints	No	22 yrs "

* Sir in Tuberculosis of the wrist.

¹ Cases reported before the American Orthopedic Association in June, 1902.

Paper read before the Clinical Meeting of Boston Medical Library, Nov. 17, 1902.

Barker and Croft, writing in the *British Medical Journal*, have already drawn attention to this tend-

ency to late recurrence in bone tuberculosis. Our orthopedic textbooks have compiled numerous collections of statistics regarding the prognosis in the various joint lesions. One of the conclusions drawn from these is that once convalescence is well established in childhood (and by convalescence is meant abscesses healed, spasm disappeared, general health restored and apparatus discarded) the patient is cured, and that though some deformity may remain, causing more or less discomfort, the particular bone lesion for which treatment was undergone is practically well. The percentage of recovery during the first decade is said to be 65%, with an increasing ratio of bad results for the succeeding decades. The period of time covered by the observations upon which these percentages were based in no cases exceeded eight years, and in one series of 39 cases only eight were over four years. In my series of 47 cases the average interval which elapsed between the end of the treatment of the initial diseases and its recrudescence was 12½ years, that is, 4½ years in excess of the maximum period at which statistics were obtained in the textbooks. It would appear, then, that had the statistics upon which these prognoses were made been procured after a longer interval the percentage of recovery would need to be modified, or else we are dealing with a more severe type of disease in this community. This last possibility is partly offset by the fact that into these percentages enter some of the cases treated here at our own Children's Hospital, many of which figure in both statistics.

It has been the commonly accepted belief that the danger from tuberculous bone disease lay chiefly in the liability of its extension to the viscera, that is, its metastasis, and in a certain proportion of the cases this is true. This feeling has not found expression in our ideas of treatment, for if it had, radical removal of the focus would have been tried earlier. In this series of cases, 38 of the recurrences were at the seat of the old disease alone; 5 were both local and elsewhere, whereas only 4 were purely metastatic. These four metastases were either pulmonary, in the genito-urinary tract, or elsewhere in the osseous system.

Traumatism has been directly associated with the relapse in about 25% of the cases. I have been a little disappointed in looking up the statistics not to find it more frequent, for my preconceived clinical impressions were that it would be more constantly associated. I had felt that this would be true because of the way in which repair takes place in bone tuberculosis. The process is analogous to that in the lung; namely, organization of the granulation tissue thrown out about the point of infection. Thus the bacilli become encapsulated, but, owing to their tenacity of life, they remain pathogenic for indefinite periods, and all that is needed to permit them to resume their activities is some violence causing a rupture of this protective wall of granulation, or a lowering of the resistance of the tissues to such a degree that the bacilli can break through. It matters little which cause operates to bring this about; the result is the same.

Two recent operations upon old tuberculous knees have emphasized this method of repair. In one case an excision was done for deformity, and

in the other, the joint was opened for acute symptoms in a relapsing case. In the first, the disease had been in the internal condyle, and, on opening the joint, there were no signs of the old disease except for a thin shell of bone over a cavity in the internal condyle, which was lined with well-organized granulation tissue, and contained about one-half ounce of fluid, which was quite clear, except for a few old flocculi. A similar condition prevailed in the second case, except that here there were two cavities, one in the tibia, and one in the femur. In the last case, which had been quiescent for five years, and the patient had used the joint freely at her work as a mill hand, the disease had become quite active, and the synovial membrane about the old encapsulation was freshly infected, having all the appearances of being a new process.

In these cases it was perfectly obvious that direct violence from the outside or even from the use of the limb, stiff as it was, would be very liable to disrupt the sac enclosing the old focus. In fact, the conditions which surround an adult who has a stiff hip or knee, or an ankylosed spine, the result of tuberculous disease, must be very favorable indeed if the wear and tear of life and the trauma of ordinary use, leaving out of consideration the unusual and accidental traumata to which we are all liable, does not stir up the old process, even after many years of latency. The existence of deformity immensely aggravates the liability to recrudescence, as the strain at the site of the old disease is very much greater under such circumstances. A slight trauma can exert great force when communicated to a diseased joint through a limb ankylosed in a bad position, and I feel confident that it is in this manner that most of the relapses are caused.

To revert to the textbooks, we find them in practical accord as to the difference in the prognosis among children and adults. Fewer and fewer cases recover, the later in life the disease manifests itself. This is due to two principal causes, I believe. In the first place, the existence of deformities, which is the rule, and among which we may include ankylosis and shortening (for they operate in the same way), not only puts the diseased joint to a disadvantage but injures the general health of the individual as well. In the second place, adult tissues have not the resistive or reparative power that the same tissues have in the growing period of life. They will not withstand from without or within what they would in earlier years, neither will they as firmly wall off a process that becomes active from any cause.

As the cases have been observed at the clinic, however, the ones in which the disease ran its acute course in childhood and relapsed in adult life did less well, as a rule, than those coming for treatment for the first time early in adult life. Such patients, however, should not be compared with those forming the subject of this paper, for we have not the necessary data on the primary adult cases who have apparently recovered upon which to base the comparison.

Treatment. — The treatment of tuberculous joint disease is undergoing considerable modification.

The tendency is toward more and more complete fixation in childhood, in recognition of the fact that

deformities can thus be prevented more readily and healing of the local process can be more firmly established, the accomplishment of either of which means less likelihood of relapse.

Operations in adults are undertaken earlier and more radically because it is found that excision gives greater immunity from extension of the disease locally or systemically, even though the ensuing functional result may be less satisfactory than ankylosis in a good position might be.

Such facts as this table shows should lead us, it seems to me, to regard joint tuberculosis in childhood in a more serious light than we have been in the habit of doing. Conservatism has given such apparently good results, during the average period that cases are under observation, that we have been content to rest our treatment upon fixation in some form, with surgical interference as a last resort. Now that there is a wider knowledge of the symptomatology of joint disease among the profession, diagnoses are made much earlier than formerly.

More refined methods are now in our possession for examining joints and determining the character of their lesions, so that we can not only determine with certainty that we are dealing with tuberculosis but where in the joint the lesion is situated; I refer, of course, to the use of tuberculin and the x-ray. In view of these facts I think we are justified in exploring articulations that we otherwise should leave alone, in order to eradicate, if possible, a disease which, if left to heal under prolonged treatment, is a source of constant danger to the individual. This, however, is a field to be approached not rashly, but with conservative radicalism, and I feel confident that with proper care in selection good results will follow.

The cases which heal and relapse should be treated much more energetically than is customary. This is desirable because their tendency is to do badly and because the onset of the recrudescence represents a time when the process is active in the smallest possible area of the joint, the bulk of the active disease being walled off from the rest of the joint and therefore much more amenable to operative removal even than at the very outset of the disease. Exploratory incisions and careful dissections in these cases will oftentimes effectively get rid of disease with much less mutilation than an excision. The climatic treatment for joint tuberculosis as well as for the pulmonary form is being more and more used. It is not necessary to go to the pulmonary resorts to secure this. It can be obtained at home by removing the patient into the open air. This has been carried out in tents, with most gratifying results in the hands of McKenzie and Galloway in Toronto. In the treatment of septic conditions, the value of this sort of treatment has been long recognized. The bad results in tuberculosis of any form are due to superimposed septic infections, virtually a septicemia, and therefore we have all the more reason for urging the open-air treatment, which gives such good results in septic cases.

CONCLUSIONS.

(1) Tuberculous disease tends to recur after apparent cure in a considerable proportion of cases.

(2) This recurrence is most commonly a local one. Metastases are not common.

(3) Trauma, direct or indirect, is frequently associated with the recurrence. Indirect trauma is probably the exciting cause of the recurrences, especially where partial ankylosis or deformity exists.

(4) Patients who have suffered from bone and joint tuberculosis should be cautioned that they are not well when symptoms have ceased and that reasonable care must be exercised to avoid recrudescences.

(5) Deformity and shortening should be corrected as far and as accurately as possible to lessen the chance of recrudescence.

(6) Mechanical treatment, especially fixation, should be used in the acute conditions in childhood. Exploratory interference, where discretion is used, with a view to removal of isolated foci, is *advisable* in many cases in children, and is to be *urged* in the majority of the recrudescences, if seen early. Recognition of the fact that patients with hip disease, Pott's disease and tumor albus have tuberculosis just as much as if they had phthisis, and should be treated accordingly, must be insisted upon.

The following table presents in perhaps a more graphic manner the observations upon which this paper is based. Its principal facts are epitomized as follows:

STATISTICS.

Total cases, 47.

Twenty-nine males, eighteen females.

Thirty cases treated with apparatus.

Pott's disease	16
Hip disease	17
Tumor albus	10
Ilium	1
Ankle	2
Shoulder	1
Abscess occurred in 33 cases.	

Average age at time of exacerbation, twenty-eight years.

Average duration of quiescence in forty-five of these cases, twelve and one-half years.

THE IMPORTANCE OF INCREASED HOSPITAL ACCOMMODATIONS FOR THE TREATMENT OF MEASLES.

BY JOHN H. MCCOLLOM, M.D., BOSTON,

Resident Physician of the Department for Contagious Diseases, Boston City Hospital.

THE idea is quite prevalent in the community that measles is a comparatively mild disease, and that treatment in hospital is not necessary. It is the object of this paper to show that while this opinion may be true to a certain extent, it is not true in the majority of cases where adults are attacked with this disease. It is not to be supposed that an epidemic of measles can be limited to such an extent as is possible with some of the other infectious diseases, but it is certainly true that many lives may be saved and much suffering prevented by having sufficient hospital facilities for the treatment of all applicants ill with this disease. Measles is the most infectious of all diseases, and it is infectious to a certain extent from the time that a patient commences to cough. This infectious stage may exist for a week or ten days before there is any eruption, or before it is possible to make a diagnosis. Koplik's sign is of the greatest assistance in making an early diagnosis, and it sometimes can be seen, if a careful examination is made of the mu-

cous membrane of the mouth, four or five days before there is any coryza or before the appearance of the eruption. It has been claimed that this symptom is not always present in measles, and it also has been stated that this sign is present in other diseases than measles. In regard to the first statement personal experience has demonstrated that this sign is always present in measles, and that the statement made by certain observers that they have failed to find this appearance proves that careful examination was not made or that this condition was not recognized. In regard to the second statement that Koplik's sign is present when the patient does not have measles, my experience has shown that an aphthous condition of the mouth is very frequently mistaken for Koplik's.

The importance of the early recognition of the disease and the prompt isolation of patients cannot be overestimated, for only in this way can the prevalence of the disease be diminished. This is particularly important in hospitals and other institutions where people are brought into intimate relationship.

In a city of the size of Boston, there is a very large contingent of young men and young women living in boarding houses and lodging houses who, if they are taken ill with measles, require careful hospital attention. Many patients ill with this disease are refused admission at the South Department of the Boston City Hospital for lack of room. There is no doubt that much suffering is caused thereby and also some deaths. It must be borne in mind that the South Department is the only hospital that admits this class of patients. It is also worthy of notice that if there are patients ill with measles in the Boston City Hospital proper, in the Massachusetts General Hospital, in the Children's Hospital, in the Carney Hospital, and in the other smaller hospitals of the city, as well as in the various eleemosynary institutions, the South Department must provide for them. It is a well-recognized fact that 2,000 cubic feet of space should be given to each patient ill with an infectious disease. It is more important with measles to have this amount of air space than with many of the other infectious diseases. During the past few years, in the section at the South Department devoted to measles, the air space has been diminished, owing to the crowding of the patients, to 800 cubic feet. The section devoted to measles is separated from the other wards by open air corridors seven feet wide, which gives a fair amount of isolation; but this is not sufficient to prevent the possible danger of cross infection. The safety of patients ill with scarlet fever, as well as those ill with measles, imperatively demands a separate pavilion for the treatment of the latter disease.

The complication of diphtheria and measles is extremely common, and patients ill with these diseases require separate accommodations. When the condition of the mucous membrane in measles is taken into account, one can readily understand why diphtheria so frequently supervenes in an attack of measles. In the Boston Medical and Surgical Journal of July 25, 1901, there is a paper entitled, "Diphtheria as a Complication of Measles,"¹ by

David N. Blakely, M.D., of Boston, and Fred G. Burrows, M.D., of San Francisco, formerly assistant resident physicians at the South Department, which gives a very good idea of the severity of this condition. In one of the tables the following figures appear, based on the admissions to the ward for cases of mixed infection:

		Deaths.	Death- rate.
Total number of cases of diphtheria			
with measles.....	157	54	34%
Number of laryngeal cases.....	82	36	44%
Number of intubations.....	47	26	55%
Number laryngeal not intubed.....	35	10	29%

Certainly these patients required hospital treatment, and the majority of them would have died without it.

Inflammation of the middle ear is a very frequent sequela of measles, the percentage being nearly twice as great as that in scarlet fever. This condition, if the process extends to the mastoid cells, requires prompt surgical interference, which can better be done in a hospital than at a private house. Certainly these patients require hospital treatment, and it is also evident that they must be isolated.

It has been claimed that measles only attacks children, but this is not true to the same extent as in scarlet fever. As illustrating this point, the following figures have been taken from the report of the surgeon-general of the United States navy. In 1898 there were 58 cases of measles in the navy, with an average strength of 15,229; in 1899, with an average strength of 23,038, there were 135 cases of measles; in 1900, with an average strength of 20,113, there were 37 cases; in 1901, with an average strength of 22,977, there were 160 cases. Scarlet fever in the navy for the same years was as follows: In 1898, there were 21 cases; 1899, 38 cases; 1900, 29 cases, and in 1901, there were no cases of scarlet fever.

In the report of the surgeon-general of the United States army, it is stated that in 1898 there were 7,389 cases of measles, giving an admission rate of 49.98 per thousand of strength; in 1899, there were 2,755 cases of measles, with an admission rate of 26.10 per thousand of strength; in 1900, there were 622 cases of measles, with an admission rate of 4.51 per thousand of strength. The greater prevalence of measles in the army, as compared with the navy, may be explained by the fact that as the men in the navy are on board ship much of the time, the possibility of infection is very much less than where men are on duty in barracks and camps.

A study of mortuary statistics proves that deaths from measles are an important factor in increasing the death-rate in cities. Chart A shows the ratio of mortality of scarlet fever per 10,000 of the living, in Boston, New York (old city), Philadelphia, Brooklyn, Chicago, St. Louis, from 1897 to 1901 inclusive, compared with that of measles in the same cities for the corresponding time. It will be seen from this chart that in 1897, 2.51 out of every 10,000 of the living in Boston died from scarlet fever and that during that year only a comparatively small proportion in Boston died from measles. In 1900 in Philadelphia three people out of every 10,000 died from measles, and only 1.25 died from scarlet fever. In Brooklyn in 1900 the ratio per 10,000 of deaths from measles was 2.65, while that from scarlet

¹ Boston Medical and Surgical Journal, vol. cxiv, No. 4, pp. 89-92, July 25, 1901.

fever for the same time was only 1.11 per 10,000. Without giving a detailed account of the ratio of

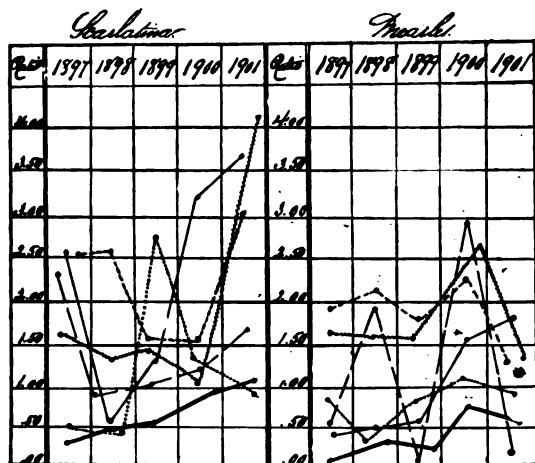


CHART A.

Boston ————— New York ————— Philadelphia —————
 Brooklyn - - - - - Chicago - St. Louis - - - - -

deaths from scarlet fever and measles in each of these cities from 1897 to 1901, inclusive, it is sufficient to simply glance at Chart A to see that measles is a much more fatal disease than is generally believed. Even the most prejudiced observer, from a study of this chart, should be convinced that patients ill with measles require hospital treatment.

In the foreign cities the ratio of deaths from measles per 10,000 of the living is very much greater than that of Boston. Chart B shows the ratio of mortality of scarlet fever and of measles per 10,000 of the living in London, Liverpool, Glasgow, Vienna

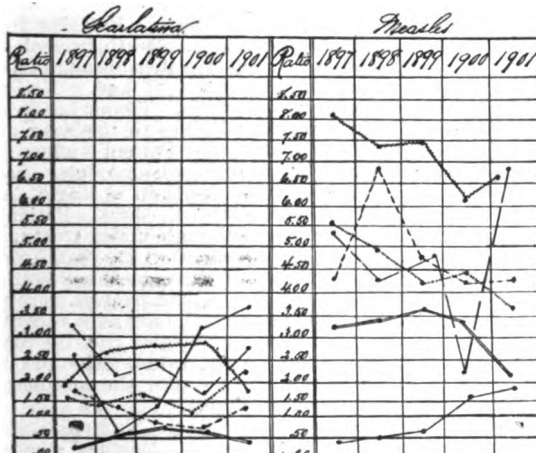


CHART B.

Boston ————— London ————— Liverpool —————
 Glasgow - - - - - Vienna - Paris - - - - -

and Paris as compared with Boston. A study of this chart shows that in all the foreign cities represented, with the exception of Liverpool, the ratio of deaths from measles per 10,000 of the living was very much greater than that from scarlet fever. For instance, in Glasgow the ratio of deaths from scarlet fever in 1897 was 1.84, while that from measles was 8.03. In London the ratios of deaths from scarlet fever in 1897, 1898, 1899, 1900 and 1901 were, respectively,

1.74, 1.29, .88, .78, 1.28, while those from measles for the corresponding years were 4.31, 6.82, 4.75, 4.21, 4.30, or, in other words, nearly three times, and, in some years, four times as many people died from measles in London as died from scarlet fever. It is unnecessary to take up each city in detail, the chart is sufficient proof of the severity of measles in the five foreign cities taken for comparison with Boston. Why there should be such a low mortality rate in Boston it is impossible to explain. It is evident, however, from a careful study of mortuary statistics of Boston that many deaths are caused by measles and its complications each year, which fact shows the need of greater hospital accommodations.

The following conclusions are justified:

- (1) Measles is not necessarily a mild disease.
- (2) There are a great number of individuals living in boarding houses and lodging houses who require hospital treatment, if ill with measles.
- (3) Present accommodations are insufficient.
- (4) In order to properly protect scarlet fever patients and measles patients from cross infection, a separate pavilion is imperatively demanded for the treatment of those ill with the latter disease.

AN EXPERIMENTAL AND PRACTICAL DEMONSTRATION OF THE VALUE OF DOWNES' ELECTRO-THERMIC ANGIOTRIBE.

BY JOHN W. KEEFE, M.D., PROVIDENCE,

Attending Surgeon to the Rhode Island and St. Joseph's Hospitals.

THE use of compression and heat to prevent hemorrhage as employed in the modern electro-thermic angiotribe of Downes would, at first sight, lead one to think we had retrogressed even unto the early days of Ambroise Paré. Yet the finished instrument of to-day upon which Downes has spent so much time and thought bids fair to supersede the ligature, to the improper sterilization of which so many deaths may be traced.

The following experimental work on resection of the intestine, with the aid of the electro-thermic angiotribe, was carried out on dogs, with a view of finding an aseptic method for operating upon the intestine and stomach.

CASE I. Dog, weight thirty pounds. Resection of intestine. Downes' electro-thermic angiotribe. Murphy button. Death.

Operation Nov. 21, 1902. Ether anesthesia. The abdomen was opened, the ileum drawn through the wound, and the electro-thermic angiotribe used to clamp the intestine, and a current of sixty amperes allowed to pass through the instrument for fifty-five seconds. This process was repeated four inches distant on the intestine and also on the mesentery, supplying the portion of gut to be excised.

The clamp left a desiccated strip of tissue three eighths of an inch wide along the mesentery and at two places across the intestine. A four-inch strip of gut was excised by cutting through the center of the clamped area. A lateral anastomosis was then made with a Murphy button. The clamped ends of the gut, occluded by the desiccated strip of tissue, were purposely not interfered with, as I wished to learn how soon they would slough, should this take place. I found free fluid in the peritoneal cavity, showing the dog already had peritonitis. Death thirty-eight hours after operation.

Autopsy by Dr. Fulton, pathologist to the Rhode Island Hospital. Both ends of the clamped gut had sloughed, allowing extravasation of feces. No leakage about Murphy button. General peritonitis. About four

feet from site of operation in the ileum was found an inflammatory mass the size of a quarter, in the center of which was a perforation of the gut; thus accounting for the free fluid I found at operation.

This taught me that the electro-thermic angiotribe had caused sloughing of the clamped portions of intestine in at least thirty-eight hours.

CASE II. Dog, weight ten pounds. Resection of intestine. Electro-thermic angiotribe. End-to-end anastomosis. Recovery.

Operation Nov. 25, 1902. Ether anesthesia. *Celiotomy.*—A loop of the ileum was drawn through the wound and five inches incised by the electro-thermic angiotribe, as in foregoing operation. The ends of the gut, still occluded by the desiccated strip of tissue, were placed in apposition and silk Lembert sutures were used to approximate peritoneal surfaces, thus leaving the intestine occluded. I depended upon subsequent sloughing of the clamped portions of gut. The operation was aseptic throughout. Bowels moved thirty-six hours after the operation. Milk diet; no medicine given. The dog is perfectly well to-day, one month after operation.

CASE III. Dog, weight forty pounds. Resection of intestine. Electro-thermic angiotribe. End-to-end anastomosis with Murphy button. Death.

Operation Dec. 10, 1902. Ether anesthesia. *Celiotomy.*—A coil of ileum was withdrawn and about five inches excised as in former operations with the electro-thermic angiotribe. The desiccated ends of the gut were invaginated and an end-to-end anastomosis made with a Murphy button. This was done with considerable difficulty, as the mesentery was severed too near the excised end of intestine. Wound closed with silkworm-gut sutures. Aseptic operation. Death forty-four hours after operation.

Autopsy Dec. 12 by Dr. Fulton. General peritonitis. Leakage about the Murphy button where infolded portion near mesentery had pulled out sufficiently to allow escape of septic material. Desiccated ends sloughed on one side, nearly so on the other. Not as satisfactory an operation as an end-to-end anastomosis with sutures.

CASE IV. Dog, weight twenty-five pounds. Resection of intestine. Electro-thermic angiotribe. End-to-end anastomosis with sutures. Recovery.

Operation Dec. 15, 1902. Ether anesthesia. *Celiotomy.*—Five inches of the ileum were resected by the aid of the electro-thermic angiotribe. An end-to-end anastomosis was made with five Lembert and a Cushing suture, inverting the desiccated ends of the intestine. *After treatment.*—Milk diet and dog bread. The dog seems to be perfectly well, since recovering from anesthetic. Bowels moved on the third day. No medicine given.

The advantages of the method are: (a) Rapidity of operation; (b) hemostasis without the use of a ligature; (c) no soiling of the peritoneum, thus ensuring an aseptic operation.

The gynecological cases here reported are selected from my service at the St. Joseph's Hospital.

CASE I. Removal of ovarian cyst. Plastic operation on right ovary. Downes' electro-thermic angiotribe. No ligatures. Recovery.

Female; nineteen years of age; single. **Operation Nov. 9, 1902.** *Celiotomy.*—In the right ovary was found a cyst, the walls of which were excised and the resulting wound sutured with cumol gut. An ovarian cyst the size of a hen's egg presented on the left side, and this cyst with the left Fallopian tube was removed. Two applications of the electro-thermic angiotribe prevented hemorrhage and left a desiccated strip of homogeneous tissue about three eighths of an inch wide. The recovery was uneventful. No ligatures were used throughout the operation.

CASE II. Abdominal hysterectomy with removal of dermoid cyst and intra-ligamentary cyst. Ureters catheterized. Downes' electro-thermic angiotribe. Recovery.

Operation Nov. 11, 1902. Female; colored; married; thirty-two of age. Both ureters were catheterized,

using Kelly's cystoscope with electrical illumination. This served as a guide during the operation. Upon opening the abdominal cavity, the omentum and intestine were found adherent to the fibroid mass and a dermoid cyst. With considerable difficulty the dermoid cyst on the left was removed. A uterus containing many fibroids and reaching to within two inches of the umbilicus was removed by a supravaginal amputation. The electro-thermic angiotribe was used to prevent hemorrhage, while clamps were sometimes employed to temporarily do the same. No ligatures were left in the abdominal cavity. Post operative period unusually free from pain. Recovery.

CASE III. Celiotomy. Ruptured tubal pregnancy. Removal of both tubes and ovaries. Ureters catheterized. Downes' electro-thermic angiotribe. Recovery.

Female; married; thirty-two years of age. Entered the hospital with a history of rupture of a tubal pregnancy about three weeks ago. The temperature and pulse, with history and examination, indicated infection of a pelvic hematocoele; so under gas-ether anesthesia, a vaginal section was made into Douglas' pouch, and by aid of irrigation and drainage the patient's condition improved. Four weeks later another operation on Nov. 15, 1902. *Celiotomy.*—Both tubes and ovaries were found diseased and removed. The electro-thermic angiotribe was used in place of ligatures. Pelvis irrigated with normal salt solution, and a gauze wick was drawn through Douglas' pouch into the vagina to drain pelvis. The ureters were catheterized previous to the abdominal operation to serve as guides. A small amount of pus appeared in abdominal wound, probably infected at the time of operation by removal of infected blood clots. Otherwise recovery uninterrupted.

CASE IV. Removal of pus tube and cystic ovary of left side. Ureters catheterized. Electro-thermic angiotribe. Recovery.

Female; married; thirty years of age; was operated on by my associate, Dr. Jones, about five weeks ago, a pus tube with many firm adhesions having been removed. The patient's condition at the time did not warrant the removal of an adherent pus tube on the opposite side, so the wound was closed. **Operation, Nov. 20, 1902,** for removal of pus tube and ovary on the left side by Dr. Jones, at which I assisted by catheterizing ureter as a guide. The electro-thermic angiotribe was used instead of ligatures. Recovery uneventful.

CASE V. Abdominal hysterectomy. Fibroids long standing, large size, many adhesions. Death from shock not due to inefficiency of the electro-thermic angiotribe.

Female; married; fifty-five years of age. Noticed mass in abdomen eighteen years ago. Tumor has gradually increased in size until it reaches to the liver and rises four inches above umbilicus. Patient suffers intense pain when not under influence of an opiate. Says she has taken four grains of morphia in a single day. *Diagnosis.*—Multiple fibroids with adhesions. Patient's physical condition poor, and although under treatment for some time it did not improve. **Nov. 29, 1902,** operation done only as a last resort at the earnest solicitation of the patient. The uterus, tubes and ovaries were removed with greater difficulty than I have ever encountered. The electro-thermic angiotribe was used in place of the ligature, and was of great value. The patient died from shock about ten minutes after the completion of the operation. No hemorrhage.

CASE VI. Complete prolapsus uteri. Vaginal hysterectomy, catheterization of ureters. Downes' electro-thermic angiotribe. Recovery.

Female; married; sixty-two years of age. Uterus presents, with vaginal walls outside of vulva and looks as large as an orange. **Dec. 2, 1902,** operation; gas-ether. The right ureter was catheterized with the aid of a Bransford Lewis cystoscope, the left ureter with Kelly's cystoscope, both being illuminated from an alternating current 110 volts, a Ritzer transformer being used. A vaginal hysterectomy was done very readily by the aid of the electro-thermic angiotribe. Although patient remained in bed for two weeks, she seemed to have scarcely any discomfort from the operation.

CASE VII. Abdominal hysterectomy for fibroids. Ureters catheterized. Downes' electro-thermic angiotribe. Recovery.

Female; widow; fifty-one years of age. Operation Dec. 9, 1902. Both ureters were catheterized and the catheters being allowed to remain *in situ* served as guides during the supravaginal amputation of a uterus containing eight fibroids. Both tubes and ovaries were also removed, the electro-thermic angiotribe being used to prevent hemorrhage. Recovery uneventful.

CASE VIII. *Celiotomy*. Double salpingo-oöphorectomy. Ureters catheterized. Downes' electro-thermic angiotribe. Recovery.

Female; married; twenty-one years of age. Operation Dec. 16, 1902. Both tubes contained pus, and the ovaries were found very large and had undergone cystic degeneration. They were removed by the aid of the electro-thermic angiotribe. Preliminary catheterization of the ureters having been accomplished, the catheters were allowed to remain as guides during the operation. The clamps were applied five times and the current, sixty ampères, allowed to remain on for from thirty-five to forty seconds.

Some may think the instrument is time-consuming, so I will state that from the beginning of this operation to the time when the abdominal wound was ready for closure was twenty-one minutes. The right ovary and tube was removed in six and one-half minutes, and its fellow in four and one-half minutes. The recovery was uneventful.

CASE IX. Abdominal hysterectomy. Fibroids; double salpingo-oöphorectomy. Ureters catheterized. Appendectomy. Downes' electro-thermic angiotribe. Recovery.

Female; single; forty-one years of age. Dec. 16, 1902. Examination under ether anesthesia. Ureters catheterized. Fibroid uterus found. Dec. 20, 1902, operation by my associate, Dr. Jones. A supravaginal amputation of the uterus, with removal of both tubes, ovaries and appendix was readily performed by the aid of the electro-thermic angiotribe. Recovery uneventful.

CASE X. Abdominal hysterectomy. Fibroids; double salpingo-oöphorectomy. Appendectomy. Downes' electro-thermic angiotribe. Recovery.

Female; married; forty-eight years of age. Operation Dec. 23, 1902. The uterus, containing a number of fibroids, was amputated at internal os and removed with both tubes and ovaries. The appendix besides having a meso-appendix, which reached to one-fourth of an inch of the tip, had a band of adhesion about the center, which caused the appendix to form a coil. The walls of the appendix were thickened and the blood vessels prominent. A small electro-thermic clamp was made to grasp, at one bite, the meso-appendix and appendix. A current of sixty ampères was allowed to pass through the instrument for twenty seconds. The appendix with its mesentery was then removed by cutting with a scissors through the center of a crushed and desiccated path made by the clamp. The stump was inverted and the peritoneal surfaces approximated by tying the loop and both ends of modified mattress suture in a bunch, as suggested by Dr. Reynolds. The recovery has been normal.

CASE XI. *Celiotomy*. Left salpingo-oöphorectomy. Left ureter catheterized. Appendectomy. Downes' electro-thermic angiotribe. Recovery.

Female; married; nineteen years of age. Dec. 23, 1902. Operation; gas-ether. The left ureter was catheterized and the catheter allowed to remain during the operation to assist in locating the ureter; as a pus tube, cystic ovary and numerous adhesions formed a large mass in left side of the pelvis. Upon opening the abdomen the uterus was separated from the posterior pelvic wall, and by careful manipulation the left pus tube and ovary were set free and removed by the aid of the electro-thermic angiotribe. The appendix showed evidences of an old inflammation, and was removed by the Downes' electro-thermic angiotribe. The meso-appendix was first clamped and the current turned on for twenty seconds, and then the appendix was clamped and the current applied for twenty-five seconds. The appendix with its mesentery was then removed by cutting through the parchment-like ribbon left by the clamp. A modified mattress suture approximated the peritoneal surfaces over the sterile stump. The wound was closed in layers. Peritoneum with cumol gut, fascia with cumol chromicized gut, and skin with

subcutaneous silver wire. Recovery perfect, scarcely any pain.

No ligatures were used during the foregoing operations, and no hemorrhage has followed the application of the electro-thermic angiotribe. The patients seemed to have less pain subsequent to operation than is usual when the ligature is used.

An alternating current of 110 volts, which is used in lighting the hospital, was employed by the aid of a Ritz transformer, to heat the electro-thermic angiotribe and give light in the cystoscopic examination necessary to catheterize the ureters.

The use of these appliances may be learned in a very short time, as it is not necessary to have a profound knowledge of electricity to use the transformer or electro-thermic angiotribe.

Some of the advantages of the electro-thermic angiotribe are:

- (1) Rapidity of operation.
- (2) Asepsis and cleanliness during the operation; no soiling with blood, pus or feces, as one may meet with in the removal of a pus tube, appendix or portion of intestine by other methods.
- (3) Hemostasis without the aid of a ligature.
- (4) We have no secondary hemorrhage from the slipping of ligatures, or the subsequent infection of the same, causing death or discharging sinuses to remain for months.
- (5) We have less pain subsequent to operation, as the tissues are not puckered and constricted by ligatures.
- (6) The manner of using these instruments is very simple, and one should try this method before passing judgment thereon.

PLAGUE SERUM IN THREE CASES.

BY W. J. CALVERT, M.D., ST. LOUIS, MO.,

Formerly Assistant Surgeon, U. S. A.; Lecturer on Tropical Diseases in Medical Department, Washington University, St. Louis, Mo.

OWING to the limited amount of plague antitoxin in Manila, very little opportunity was offered to test its merits. The following cases are reported to help make up data for a more general conclusion. In the first case Yersin's serum was used, and Kitasato's in Cases II and III. I take this occasion to thank Professor Kitasato for so generously sending a quantity of his plague antitoxin to the Pathological Laboratory, Board of Health, Manila, P. I.

CASE I. S. L., adult male Filipino was admitted to San Juan de Dios Hospital at 9.30 A.M., July 7, 1900, where the diagnosis of plague was made at 1.30 P.M. Previous history is unknown. Smears from blood show numerous plague bacilli. Cultures from blood were positive. Patient was unconscious when removed to Plague Hospital. On admission, temperature was 39.7° C., pulse 140, and respiration 32.

Physical examination revealed an old itch; eyes dull, pupils dilated; frothy bloody discharge from mouth, tongue covered with brownish-white coat, edges clean and edematous; clotted blood about nares from previous hemorrhage; veins in neck pulsating; left side of thorax more prominent, movement less, vocal fremitus of lower portion more marked than on right side; percussion note in lower left lobe flat, tubular breathing; area of pulsation from fourth to seventh space and from left border of sternum to one centimeter left of nipple line,

no murmurs; spleen enlarged, abdomen otherwise negative; large, left femoral bubo and unconsciousness.

Diagnosis of bubonic plague with pneumonia in left lower lobe and left femoral bubo was made.

Twenty cubic centimeters of Yersin's serum were injected into the femoral bubo and 40 into right buttock. At time of inoculation, 3.15 P.M., temperature was 39.6°, pulse 140, stringy but regular, respirations 32. One-thirtieth gr. of strychnia and one-half oz. of whiskey were given every four hours. Following the inoculation a drop in temperature was noted, reaching normal at 11 P.M., excepting a slight variation in rate, no change in the character of pulse observed; respirations fell to twenty-four. On 8th, second day in hospital, patient had one involuntary stool, and was for a time slightly delirious. Temperature remained high in spite of long sponge baths given every three hours. At 10 A.M., 60 cc. of Yersin's serum were injected into right buttock; temperature 39.8° C., pulse 170 and respiration 40. In the late afternoon, patient was decidedly worse, so no more serum was used.

During the 9th, third day in hospital, patient was becoming weaker; temperature ranged from 38.4° C. to 40°; pulse almost imperceptible and entire body bathed in cold perspiration. Patient was unconscious, and died at 1 A.M., July 10.

In this case the points of interest are left lower pneumonia, enlarged spleen, left femoral bubo and marked septicemia on third day before death. One hundred and twenty cubic centimeters of Yersin's serum were used.

At autopsy petechial hemorrhages in all of the organs, large spleen, consolidated left lower lobe and left femoral bubo were noted. Smears from the heart's blood and spleen contained very few bacilli; in fact, it was very difficult to find one bacillus. Smears from the consolidated lung and femoral bubo showed numerous bacilli. Cultures from heart's blood and spleen contained only a few colonies; while those from the lung and bubo showed many. In my experience, this is an exceptional finding, as the septicemia is progressive, amounting to bacteriemia at or just before death. Perhaps, the serum may, to some extent, explain the disappearance of the bacilli from the blood and spleen.

CASE II. M. d. I. P., adult, female Filipino, was admitted to Plague Hospital on April 16, 1901, on second day of disease, with a right femoral bubo.

Physical examination revealed tongue heavily coated white; few moist râles over both lungs; pain on pressure over right iliac region and right femoral and inguinal buboes.

On April 17, third day of disease, patient was restless and complained of severe pain in bubo. At 2 P.M., 70 cc. of Kitasato's serum were used; temperature 39.9° C., pulse 112 and respiration 36; at 5 P.M. temperature was 40° C., and at 6 P.M. pulse was very weak. Two injections of 35 cc. each were given at 8 and 12 P.M. Throughout the night pulse was almost imperceptible, breathing shallow and pain throughout the body intense. Strychnia and whiskey were freely used. During the morning of the 18th, fourth day of disease, patient was nauseated but could not vomit; later in the day patient vomited several times, and toward night complained of severe pains throughout the body. At 6 P.M. an inoculation of 25 cc. was given. During the night patient was very weak. On 19th, fifth day of disease, patient was very restless, weak, respiration labored, pulse weak and irregular, and temperature below normal. At the point of first inoculation a diffuse subcutaneous hemorrhage was noted. At midnight an inoculation of 35 cc. was given; some delirium was later noted. On 20th, temperature was 102°, patient was brighter, free from pain and pulse good. Subsequent history unimportant, bubo was opened May 1, and patient was discharged from the hospital on June 2. Smears and cultures from the blood were positive on four successive days.

CASE III. J. C., adult male Filipino, was admitted to Plague Hospital on April 23, 1901, on second day of disease, with a large right femoral bubo.

Physical examination revealed thick, white coat on tongue, edges clean and edematous; face, thorax and abdomen negative, and a large, right femoral bubo. Diarrhea, severe headache and several attacks of vomiting were noted. At 2 P.M. 35 cc. of Kitasato's serum were injected into left buttock, temperature 102.3°, pulse 128, stringy and full, respiration 32. Following the inoculation a fall in temperature to 98.6°, pulse 132, and respiration 36 were noted. During the night patient was delirious and pulse very weak. During the 24th, heart sounds were weak and percussion note over both lungs defective. Femoral bubo was prominent; all of the inguinal glands involved, and edema of leg extensive. At 6 P.M. an inoculation of 35 cc. of serum was given; temperature 100.4°, pulse 160 and weak, respiration 36. At midnight another inoculation was given, patient delirious; April 25, fourth day of disease, patient was delirious; eyes dull; pulse rapid, weak and irregular; and few moist râles in both lungs. At 6 A.M. temperature dropped to 96°, to remain below normal until death at 4.30 P.M. Smears and cultures were positive from April 23 to time of death.

Points of interest in this case are severity of the attack, right femoral bubo with involvement of all inguinal glands, and septicemia from second day of disease until death. At autopsy the usual lesions of plague were noted: all of the right inguinal, iliac and lumbar glands were enlarged and surrounded by marked edema. A few bacilli were found in smears from the heart's blood and spleen, while those from the buboes were teeming with organisms. Pure cultures were obtained from the heart's blood and spleen, mixed cultures from the femoral gland.

Of the three cases only one survived. The usual terminal septicemia in Case I was practically absent, in Case III not marked, and in Case II a few organisms were found in the blood on four successive days. The drop in temperature following the use of serum must be noted, but its importance cannot be determined in this limited number of cases. Cases in which no serum is used frequently show a similar drop in temperature. It is believed that in Case II the serum was of value, and if larger quantities had been used in Cases I and III, more favorable results might have been obtained. It is very evident that large quantities of plague antitoxin must be used if favorable results are to be had.

Clinical Department.

THE GENERAL TREATMENT OF TUBERCULAR BONE AND JOINT DISEASES.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

UNTIL the past few years the treatment of tubercular bone and joint diseases has been considered to be largely local in nature. The lesions in the joints have been looked upon quite generally as demanding simply mechanical treatment, and if the results were not good, the mechanical features were held to be responsible. Comparatively little attention was paid to the hygiene or the general condition of the individual.

During the past few years there has been a growing tendency among the profession to recognize the

fact that, while surgical tuberculosis represented in the beginning a local process, it was distinctly a debilitating disease which might easily result in its development elsewhere, and that in the treatment every effort should be made to improve the patient's nutrition and increase the resisting power.

The splendid work which has been done in the past decade in the treatment of pulmonary tuberculosis has had its effect or is having its effect upon the surgical profession, so that to-day the surgeon is not fulfilling his full duty unless in connection with local or mechanical treatment every effort is made to better the patient's general condition.

Out-of-door life should be insisted upon almost as much as with pulmonary tuberculosis. Forced diet is needed and the best possible hygiene both at home and when at work should be arranged, and these features are not for a few months only but should be observed by the patient during the remainder of his life.

This is also reasonable when we consider that comparatively few patients die strictly of tuberculosis, but that with a very large number death is due to septicemia. Such a condition must be combated by keeping the patient's health up to the very highest possible point, and it is the chief point in my discussion to urge upon the profession the greatest possible care in observing these details.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D., BOSTON.

AN ANALYSIS OF ONE HUNDRED CASES OF UTERINE FIBRO-MYOMA.

CULLINGWORTH¹ contributes an important paper on the natural history of fibroids from observations on 100 cases he has operated on. In every case the tumor has been subjected to careful pathological examination. The cases were not selected except that they were all admitted to the hospital because of symptoms needing attention or were seen in consultation with the view to operation. They include 89 abdominal hysterectomies, 9 abdominal myomectomies, 1 Caesarian section and 1 exploratory incision, making 100 cases. The important cases are described in detail. In 46 cases out of 100 the tumors were found to be healthy. In 52, secondary changes had taken place as follows:

Edematous and myxomatous, 27; myxo-sarcomatous, 1; cystic or fibro-cystic, 5; calcareous, 1; necrotic, subdivided into (a) necrobiotic, 15, (b) infected, 3, a total of 18; grand total, 52.

Complications caused by the tumors were as follows:

Serious peritonitic adhesions in 12 cases, hydro-salpinx in 5 cases, dilated ureters and hydronephrosis in 1 case, dilated ureters, hydronephrosis, suppurative pyelitis in both kidneys, with two phosphatic calculi and numerous abscesses in the right kidney in 1 case, ectopic gestation in 1 case, twisted pedicle in 2 cases.

Salpingitis was not once met with, and Culling-

worth believes that when it does occur in connection with uterine fibro-myoma, it is a mere coincidence. Pain is recorded as having been a noteworthy feature in 38 cases or two thirds of the necrotic cases, in three fifths of the cystic cases, and in nearly one third of the edematous cases. It is to be noted, however, that pain was complained of in about one third of the uncomplicated cases.

No general conclusions are drawn because the number of cases is too small, but the author hopes that other operators will publish their observations.

THE CASES OF UTERINE FIBROIDS TREATED AT THE GYNECOLOGICAL CLINIC IN ZURICH IN THE LAST THIRTEEN YEARS.

Dr. Schwarzenbach² analyzes the 393 cases who entered the gynecological clinic of the University of Zurich during the last thirteen years. Flowing and pain were complained of in 345 cases, flowing alone in 116, pain alone in 86, and both flowing and pain in 143. Urinary symptoms were present in 108 cases. Sterility was a frequent cause of the patients applying for treatment. Among 297 married women, 80 were sterile, or 26.9%. A majority of the women were between 35 and 55 years of age; 261 cases were treated by laparotomy. Castration was practised in 19 cases, with 3 deaths. In 5 of the successful cases who were traced for from six to twelve years, the results were satisfactory, that is, the patients were relieved of flowing and the tumors diminished in size. Myomectomy was practised on 87, with 13 deaths. Thirty-five of these were castrated at the same time the myomectomy was done, and 52 were not. In 18 the uterine cavity was opened. In one case of myomectomy with castration it was necessary to do a supravaginal amputation seven years later, because of the development of another fibroid. In those treated by myomectomy without castration the flowing was lessened, especially in the two years following operation, and all the patients traced expressed themselves as pleased with the results, and in every case the uterus was found either of the same size or smaller than immediately after the operation. One of the patients who had a fibroid the size of a man's fist in the fundus uteri gave birth to a healthy child fifteen months after operation. Previous to the operation, she had had one child and one abortion at three months. Supravaginal amputation was practised on 109 cases. Up to 1892 the extraperitoneal method of treating the stump was used, with a mortality of 37½%. After 1892 the intraperitoneal method was used, with a mortality of 7.8%. Total hysterectomy was done only when supravaginal amputation was not practicable. There were 46 cases, with a mortality of 23.9%. It is to be said, however, that of these 46 cases, 31 were done in the year 1900 by improved methods, with a mortality of 12.6% only.

The author concludes that the supravaginal amputation is the operation of choice where myomectomy without castration cannot be done. He thinks that a majority of the patients came to operation too late; that on account of anemia, weak or fatty heart, the system is often unable to successfully combat infection, where with a sound heart and the blood in good condition the result is very different.

¹Journ. of Obstet. and Gyn. of the British Empire, vol. 1, 1902.

²Beiträge zur Geburts- und Gynæk., Bd. vi, Heft 1. 1902.

PHLEBOLITHS OF THE OVARIAN VEINS SIMULATING URETERAL STONES.

Clark³ reports the case of a woman forty-two years of age, the mother of two children, who had been operated on for a right floating kidney. She had made a good recovery and was well for a year when she had a recurrence of nervous symptoms, with dragging pain in the right side below the renal region. On palpation along the line of the right ureter, a distinct cord-like enlargement slightly tender to pressure was to be felt, and the probable diagnosis of tuberculous ureter was made. Catheterization of the right ureter yielded urine in which there were a few leucocytes and red blood cells. Examination for tubercle bacilli was negative, as also the results of injecting a guinea pig with the urine. The Roentgen ray revealed apparently five distinct calculi irregularly disposed just above and below the brim of the pelvis, and operation was decided upon. On operating it was found that what appeared to be five calculi were five small phleboliths in the tortuous and greatly varicose ovarian veins. They were lying more or less encapsulated in the vein wall close to the ureter. On tracing the veins upward to the kidney, they were found to continue markedly varicose and tortuous to their point of entrance into the renal veins. There were adhesions around the hilus and on top of the kidney, which no doubt had produced a slight kinking of the ovarian veins or had caused an obstruction to the renal circulation.

INGENIOUS DEVICE TO FACILITATE VAGINAL CYSTOTOMY.

E. C. Dudley⁴ describes a device to steady that part of the bladder wall which is to be incised in vaginal cystotomy and to protect the neighboring parts from injury. He introduces the blades of a small uterine dilator through the urethra, the convexity of the curve of the blades being towards the vaginal wall. The blades of the dilator are separated, and the bladder wall and vesico-vaginal septum being thus fixed the incision into the bladder is made between the blades.

DECIDUOMA MALIGNUM, A CLINICAL REVIEW.

In a lengthy article Ladinski⁵ goes over the literature of the subject and reports a case. He sums up as follows:

"The clinical features which should aid us in arriving at a diagnosis are,—

"(1) History of recent parturition or abortion, especially if a hydatid mole has been discharged or placenta retained.

"(2) Profuse hemorrhage occurring at irregular intervals without apparent cause, and not amenable to the ordinary treatment, and which recurs in spite of repeated curettages; the presence of a constant sanguineous discharge during the intervals of hemorrhage.

"(3) A persistently large and hyperplastic uterus and cervix, with a patulous os.

"(4) Pain in the pelvis.

"(5) Anemia, rapid loss of flesh and strength, and cachexia.

³ Amer. Journ. Obstet., vol. xlv, p. 537.

⁴ Clin. Rev., April, 1903.

⁵ Amer. Journ. Obstet., vol. xlv, p. 465.

"(6) Characteristic nodule in the interior of the uterus in the early stage, that is, one or more minute dark-colored or reddish nodules springing from the endometrium either by a broad base or pedicle, and invading and penetrating the uterine muscularis towards the peritoneal surface.

"(7) The presence of metastatic deposits, especially in the vagina and lungs, the latter producing cough and bloody expectoration."

On account of the rapid growth and early metastases of deciduoma malignum the mortality is necessarily high. In 124 recently reported cases, the mortality has been 59%. This is to be contrasted with 52 cases occurring previous to 1897, as reported by Dorland, in which the mortality was 73%, the better showing in the later series being due to early recognition and prompt operation.

PELVIC LESIONS IN RELATION TO THEIR DISTINCTIVE EFFECTS UPON MENTAL DISTURBANCES.

Hobbs⁶ comments on the fact that a majority of male insane patients are single and a majority of female patients are married, and attributes the greater preponderance of mental affections in the married women to uterine lesions. He gives the results of the surgical treatment of the patients in the Asylum for the Insane at London, Ontario. Organic lesions were found in 25% of all the female population of the asylum, or, 253 female patients out of 1,000 female residents of the institution during the past six years had some pelvic disease or abnormality that needed gynecological treatment. All the examinations were made with an anesthetic, and the only success obtained was through surgical means. He says: "For the past thirty years annual reports were presented to the Provincial Government of all official statistics in connection with the varying movements of the population of London Asylum. These statistics are substantially correct, and are subject to government supervision. The official records show that for the biquinquennial period previous to the introduction of systematic surgical treatment, the average annual rate of discharges of patients recovered or improved, calculated upon the admissions, was, for the male residents, 35.28%, and for the female, 37.5%. . . . For the third quinquennial period, during which gynecological surgery was in vogue in addition to the ordinary methods of treatment, it was found that the annual rate of discharges among the men differed very little from that of the previous two quinquennial periods, being 35.92%. It was discovered, however, that the women during the third quinquennial period had advanced from 37.5%, the average of the previous ten years, to 52.7%, or a gain in the discharge rate among the women of 35%. This was certainly due to the surgical treatment of pelvic disease, which existed so largely among the female population, as the other methods of combating disease were practically the same as in previous years." Also, "The value of gynecological as compared with general surgery is proved by the results obtained after operations for the radical cure of hernia. In thirty-nine patients of both sexes who were afflicted with either a ventral, umbilical, inguinal or femoral hernia, a radical cure was attempted, and, I am pleased to say, with al-

⁶ Amer. Journ. Obstet., vol. xlv, p. 185.

most uniform success as regards the obliteration of this physical lesion. The mental results succeeding the operation for hernias were almost *nil*, as no mental recovery occurred, although decided improvement in the general tone of these patients was observed." B. S. Schultze⁷ comments most favorably on Hobbs' article, and after abstracting it for the benefit of his German brethren states that he has for twenty years held the view that insane women should have the benefit of gynecological diagnosis and treatment. He quotes to this effect from an article of his published in the *Wiener Medicinische Blätter* for 1880, and says that he is glad that Hobbs' statistics bear out his views.

PSYCHICAL AND CONVULSIVE PHENOMENA INDUCED OR EXAGGERATED BY MENSTRUATION.

Viallon⁸ comes to the conclusion from a study of the cases in the Asylum of Bron and the survey of the literature that there is a toxic condition of the system produced by menstruation and that that toxic condition is the cause in certain cases of a variety of functional troubles, most frequently gastrointestinal or urinary. That under these conditions menstruation may be accompanied by elevation of the temperature, by characteristic mental troubles, usually by mental confusion, and among epileptics and general paretics by convulsive phenomena.

PRIMARY CARCINOMA OF THE URETHRA.

Brothers⁹ reports a case of this rare affection in a married woman fifty-nine years old who had reached the menopause at forty-nine years. The tumor involved the lower portion of the urethra and caused obstruction to its lumen. Brothers removed the tumor and closed the raw surfaces by a plastic operation. Microscopic examination showed the growth to be a pure epithelioma. In reviewing the literature he finds references to twenty-nine similar cases.

CONSERVATIVE OPERATIONS FOR THE CURE OF CHRONIC INVERSION OF THE UTERUS.

Dr. Ovi¹⁰ does an anterior colpo-hysterotomy in cases of long standing complete inversion, dividing the uterus anteriorly from the external os nearly to the fundus by a longitudinal incision extending into the uterine cavity. He also opens the anterior cul-de-sac by a transverse incision which meets the longitudinal uterine incision at its middle portion to form a letter T. After the uterus has been reinverted, the incisions are closed with interrupted sutures.

Ovi reports two successful cases and gives a tabulated statement of all the reported cases of inversion in literature that have been operated on, forty-three in number. His first case was done in 1900. Spinelli performed a similar operation with success in 1899.

The cases which had been subjected to laparotomy show over 30% of failures and over 15% mortality, and removal of the ovaries and tubes for inversion has a high mortality and unsexes the patient. Ovi accordingly gives his preference to the vaginal route.

⁷ *Monatsschrift f. Geburts. und Gyn.*, vol. xv, p. 383.

⁸ *Annales de Gyn. et d'Obstet.*, Février, 1902.

⁹ *Amer. Journ. of Obstet.*, vol. xiv, p. 67.

¹⁰ *Annales de Gyn. et d'Obstet.*, Avril, 1902.

RADICAL ABDOMINAL OPERATIONS FOR CANCER OF THE UTERUS.

Wertheim¹¹ reports an additional series of thirty-one cases of radical abdominal operation (removal of the lymph glands as well as the parametric tissue and the uterus and adnexa) for cancer of the uterus. His previously reported cases number twenty-nine, making sixty in all. Each case is reported in detail with a diagram of the pelvis; the blood vessels, the uterus and the lymphatic glands being represented *in situ*. A cut of each uterus after removal is also given. At the end of the article six very good photographs are given, showing the different steps of Wertheim's operation.

It is interesting to note how infrequently the pelvic lymph glands are involved in the early stages of cancer of the cervix, judging by the diagrams. Every now and then a case showing not much cancerous tissue in the cervix exhibits one enlarged iliac gland. A majority of cases show no enlargement of the lymphatics, and a few of the advanced cases show infiltration of many glands. Wertheim thinks it unnecessary to remove the glands unless they are enlarged. In his second series he had five deaths as compared with twelve in his first series.

Reports of Societies.

AMERICAN PUBLIC HEALTH ASSOCIATION.

PROCEEDINGS OF THE THIRTIETH ANNUAL MEETING, HELD IN NEW ORLEANS, LA., DEC. 8, 9, 10, 11, AND 12, 1902.

(Concluded from No. 1, page 18.)

SYMPOSIUM ON YELLOW FEVER.

ANNUAL REPORT ON YELLOW FEVER IN MEXICO.

This report was read by DR. EDUARDO LICEAGA of Mexico, who presented statistics of the spread of the disease along the Mexican coast. The recent epidemic in Vera Cruz developed 877 cases, being the most severe in the country. His report showed that 873 cases were on the Gulf coast, while only 27 cases had been reported on the Pacific Ocean coast. The epidemic in the state of Vera Cruz had been diminishing. The report mentioned the number of cases reported by states where points of infection had been found. The death-rate was low, and had been held down by the successful management of the disease. The government of the state of Vera Cruz had adopted up-to-date sanitary measures for the prevention of the spread of yellow fever.

YELLOW FEVER EPIDEMICS IN ORIZABA, MEXICO.

This paper was read by DR. NARCISCO DEL RIO of Mexico. The author related with particularity the history of the spread of the disease in his section. The inevitable conclusion was that the mosquito had been carrying his dangerous freight from place to place in the Orizaba section, thus causing the spread of the disease. The essayist found, in tracing the disease closely, that a coachman who had hauled one sick person had been bitten by a mosquito, and was soon taken down with the fever.

¹¹ *Arch. f. Gyn.*, Bd. lxx, 1902.

They at once took the necessary means to meet this agency of transmission, and after that were successful in checking the spread of the disease.

YELLOW FEVER.

DR. JOHN W. ROSS, United States Army, gave at length his reasons for believing that the only way in nature for yellow fever to be contracted by man was from the mosquito. He recommended the following measures against the propagation of yellow fever through mosquitoes:

(1) To prevent those insects from stinging yellow fever patients.

(2) To destroy as far as possible the mosquitoes which have been infected.

(3) To consider any place unsafe so long as the last mosquitoes which have stung yellow fever patients may be alive in it.

He stated that the clear-cut, scientific observations and classical contributions of Surgeon H. R. Carter of the United States Marine Hospital Service, showing the interval (about two weeks) which occurred in houses between the first (infecting) case and the first group of cases, secondarily infected, impossible to explain by the theory of fomites, were now readily understood in the light of present knowledge of the elaboration of the yellow fever poison in the body of the mosquito, that process requiring not less than twelve days.

CONCERNING THE METHOD OF TRANSMISSION OF YELLOW FEVER FROM MAN TO MAN.

DR. WILLIAM C. GORGAS, United States Army, contributed a paper with this title. The author enunciated practically the same views that have been published in previous papers on this subject by him. As to whether the disease might be transmitted through fomites from man to man, or whether by the bite of fever-infected mosquitoes, the decision depended on what steps should be taken to confine yellow fever when it made its appearance, whether a fight should be made against the mosquitoes, or whether cargoes and vessels and all things that were to be transferred from point to point, in which fomites could be conveyed, should be thoroughly disinfected. If the germs of the disease could not be transferred in fomites, then the disinfection of vessels and cargoes was unnecessary. The only measures necessary would be the destruction of infected mosquitoes and the care of persons who might transmit the germ to the mosquitoes.

DR. MANUEL S. IGLESIAS of Mexico discussed the disinfection of railroad cars as a precautionary measure against the propagation of yellow fever by mosquitoes; while PROFESSOR GEORGE E. BEYER of New Orleans related his investigations regarding yellow fever in Vera Cruz.

DR. EDMOND SOUCHON of New Orleans did not antagonize the theory of the transmission of yellow fever by mosquitoes, but he did not believe that we were prepared to say that the mosquito was the only mode of transmission of the disease. After a close and careful study of the question, he had reason to believe that there was some other means of transmission. What it was he could not say. It might be fomites, or something we knew nothing about.

DR. HAMILTON P. JONES of New Orleans, who was in charge of the Beauregard Yellow Fever Hos-

pital in this city in 1896, said that despite the fact that three hundred people were exposed to mosquitoes as transmitters of the disease, as well as fomites, not one of them had been stricken, and he was still in the dark as to the doctrine of transmission of the disease.

DR. JOHN GUITERAS of Havana said that Havana was the first of the large cities which had appreciated the necessity of adopting precautionary measures against the mosquito, and was first to do so. He then explained the prophylactic measures which were carried out in Havana.

DR. E. R. CARTER of the Marine Hospital Service expressed the idea that if the disease was conveyed to an animal host, it was conveyed there by a parasite. He said the conveyance of the disease might occur in two ways by fomites: First, directly to the person, and, second, through an infected atmosphere.

DR. QUITMAN KOHNKE of New Orleans, after mentioning the fact that the board of health was doing all in its power to guard against the disease, said that still more strenuous efforts should be made to keep it from coming to New Orleans from infected ports. If the disease was conveyed by fomites as well as by mosquitoes, it was logical to conclude that there was a greater danger than if it was conveyed alone by the *stegomyia fasciata*.

REPORT OF COMMITTEE ON THE RELATIVE IMMUNIZING VALUE OF HUMAN AND BOVINE VACCINE VIRUS.

In the absence of the chairman of this committee, DR. PETER H. BRYCE of Toronto, Ont., the report was read by DR. C. P. WILKINSON. The studies of the committee led to obvious conclusions regarding vaccinia. Summed up briefly, these are:

"(1) That it is variola modified by being transmitted in either some accidental or experimental manner from man, its normal host, to some animal of the bovine species.

"(2) That in common with other microbic diseases, its germ has an optimum temperature at which it grows best, and it is logical to conclude that since the cow's normal temperature is 101½° to 102½° F., the germ of smallpox is modified in virulence by its successive passages.

"(3) Many experiments go to show that the same vaccine lymph not only produces different results in a series of animals, but also that the lymph taken from such, being different in quality, may so depart still further from the normal in subsequent transmissions, till it may fail entirely to 'take,' or may produce an imperfect vesicle, and be but little protection either against a subsequent vaccination with a stronger lymph, or against smallpox.

"(4) That in these respects it acts in a manner similar to smallpox, which in different outbreaks shows marked variations in virulence, and affects variously different individuals infected from the same source.

"(5) That an experimental testing of every batch of vaccine before sending it out from a station is a logical necessity, growing out of such variations; and this can readily be done on children, and by comparative tests on other calves and guinea pigs."

An extended series of experiments carried on in 1898, by Beclere, Chambon and Menard, directors at the Institute of Animal Vaccine, Paris, were of the greatest importance in showing the gradual in-

crease of the immunity caused by vaccination. The procedure was simply to inoculate, by a syringe, calves, subcutaneously, with fresh glycerinized lymph, and after three, four, five, six and seven days, inoculate the animal on the skin in the usual manner, and watch the progress of the vesicle. The effect on the vaccine vesicle of such subsequent inoculations, for instance, was: (a) Vesicles appearing a day sooner than in normal vaccination; (b) vesicles modified in external appearance, rapidly arrested or aborted in their development; (c) lymph with almost no virulence four days after inoculation.

The results of these experiments with the serum from vaccinated calves and men and monkeys which had suffered from smallpox, summed up, were:

"(1) The serum of a heifer taken fourteen days after inoculation is endowed with immunizing powers, preventive and curative, but also produces, when mixed with fresh vaccine, an anti-virulent lymph.

"(2) Vaccination with such lymph produces this effect whether the vaccine be introduced into the blood, the skin, or deeper tissues.

"(3) The serum from smallpox convalescents exerts the same anti-virulent action on vaccine as does that from variolized animals, as monkeys.

"(4) The period of vaccinal immunity varies much with different species, but the anti-virulent property of blood goes on decreasing and may disappear completely, although the skin in the same person may still resist re-inoculation with vaccine.

"(5) This anti-virulent property varies in different persons, but persists for twenty, thirty and even fifty years or over, in its partial protection against variolous and vaccinal infection.

"(6) We do not yet know whether this substance acts directly on the infected agents as a virulicide, or whether it acts as a stimulant on the tissue cells of the organism."

The committee had seen what the practice in the National Vaccine Establishment in London was, and the chairman said he was personally able to say that no expense had been spared in the great laboratories of the United States to provide every possible means by which vaccine lymphs of a normal virulence, free from extraneous germs, were prepared to-day with care, he believed, not exceeded in any government laboratory in the world. Why, then, were there complaints, especially from the profession, of abnormal results in vaccination? The reasons were given in their order, as follows:

"(1) A general absence of any teaching, in our schools of medicine, of the principles and practice of vaccination, as understood and carried out by Jenner and all his true successors, and as it is practised to-day in Germany, France and England.

"(2) A very general absence amongst the younger members of the profession, and wholly so in the younger generation of the people, of a knowledge of what a case, and yet more an epidemic, of smallpox of normal virulence means.

"(3) A very general impression, till recently, in both these classes, that vaccination could be reduced to a mere name, and that it did not necessarily mean the communication of a true disease in order to immunize against smallpox.

"(4) A similar impression for a time in the minds

of some producers of vaccine, that attenuated virus could sufficiently immunize, and would, further, sell better if it did not produce unpleasant effects.

"(5) The appearance some years ago of vaccines which had not been taken on the fourth or fifth days after inoculation of the calf, or had been taken at several successive sittings, and which necessarily contained active pus germs; or, on the other hand, a weak lymph, from animals which had not taken properly.

"(6) Neglect on the part of the operator, even the physician, to prepare the arm properly, prior to inoculation.

"(7) Improper method of inoculation, the deeper tissues being often wounded during scarification, with a greater inflammatory reaction as a result.

"(8) Neglect to protect the wound, after the vesicle had formed, against injury and the introduction from filthy garments and the finger nails of foreign matters."

Without further discussing the various points in favor of either humanized or of bovine lymph, the committee deemed it worth while to inquire how far there existed exact methods which were carried out in the production of bovine lymph in the United States and Canada, or whether the situation was so unsatisfactory that some new scheme should be adopted for more adequately meeting the situation. It might be observed:

"(1) That in all the European countries mentioned, the compulsory law provides for the systematic vaccination of all children within one or two years of birth.

"(2) That the law requires that only certified public vaccinators can perform the operation; and in England, at any rate, the certificate from some public vaccination station is demanded before any medical student can obtain graduation. There the work of vaccination goes on from month to month.

"(3) Precise directions are supplied for the performance of the operation, and especially for the seventh or eighth day inspection of the arm, and subsequent supervision of the patient.

"(4) That heavy fines may be levied upon any vaccinator who may be shown to have been careless in performing the operation.

"(5) That while in England gratuitous vaccination is given only to the poor, yet in Germany all the work is done at public expense, but in both cases the supervision of persons vaccinated is strictly insisted upon."

The committee concluded its exhaustive report in the following language:

"So far as your committee is able to judge, no practical scheme can be adopted by a state or provincial board of health, under existing legislation, for the supervision of the lymph to be used within its jurisdiction, unless it be that state boards would agree to recommend for use by their local boards of health only the lymph of such firms as will agree to pay for the presence in their establishments of a trained officer, who could certify that all lymph sent to such state or province had been tested and found to meet all the requirements which science to-day demands for the preparation of the lymph of the highest degree of excellence. Whether such a scheme would in practice be possible is not for your committee to express an

opinion upon, since the element of commercial competition would have to be considered; but the experience of many executive officers, both state and municipal, has been such as to make the adoption of such supervision, if practicable, eminently desirable."

The report was signed by the members of the committee, namely, Drs. Peter H. Bryce, William M. Welch and Eduardo Liceaga.

PROCEEDINGS OF THE SECTION ON BACTERIOLOGY AND CHEMISTRY. CHAIRMAN, DR. F. F. WESBROOK, MINNEAPOLIS, MINN.; SECRETARY, MR. GEORGE C. WHIPPLE, BROOKLYN, N. Y.; AND RECORDING SECRETARY, DR. H. D. PEASE, ALBANY, N. Y.

THE OCCURRENCE OF TUBERCLE BACILLI OF EXALTED VIRULENCE IN MAN.

The author of this paper, DR. M. P. RAVENEL of Philadelphia stated that the occurrence of tubercle bacilli in man, which had a high degree of virulence for experimental animals, was rare, if one judged by the published reports, and it was still more rare to find cultures which were highly pathogenic for cattle. So marked was the difference in pathogenic power of cultures isolated from man on the one hand, and from cattle on the other, that a division into races had been proposed depending on this feature; and Koch held that inoculation of a given culture into cattle would surely show whether it was of human or bovine origin. Believing that bovine tuberculosis was a fertile cause of the disease in milk-fed children, he had for some time past taken every opportunity possible of selecting cultures of tubercle bacilli from the mesenteric glands of those who had died of a tuberculosis which was not clearly of respiratory origin. This had led to the discovery of two cultures, one of which was as virulent for all animals on which it had been tested as cultures obtained from cattle usually were; and the other, while not nearly so virulent, was still much in advance of the usual human culture. The material from which these cultures were isolated was furnished through the kindness of DR. ALFRED HAND of Philadelphia.

OBSERVATIONS ON THE MORPHOLOGY OF BACILLUS DIPHThERiÆ, BACILLUS PSEUDO-DIPHThERiÆ AND BACILLUS XEROSIS.

DR. F. P. DENNY of Brookline, Mass., read this paper, which was based on the study of serial preparations made at intervals from the same cultures.

Bacillus diphtheriæ. — In young cultures; up to eight or twelve hours, the development was characteristic of all bacilli, and consisted in elongation of the rods and fission. The bacilli would stain evenly. After this time fission ceased in most of the bacilli and changes took place in the individual organisms. Granules developed; the rods became elongated and might become filamentous; the protoplasm might break up into segments; true branching might occur, though very rarely, all of which were changes characteristic of the higher bacteria and especially of the streptothrix. Certain variation in the conditions of growth might hasten to retard these changes. Thus variations in temperature and in the reaction of the media, also symbiosis, might prolong the solid staining

stage and make the diagnosis of fifteen-hour cultures difficult.

Bacillus pseudo-diphtheriæ. — This was like the young forms of *bacillus diphtheriæ*. It had no stage of development when it grew into long forms like the higher bacteria. On the contrary, the bacilli were even shorter in old than in young cultures.

Bacillus xerosis. — Young forms were solid, staining like young *bacillus diphtheriæ*. In older cultures the bacilli became elongated and the protoplasm would break up into segments; only rarely did granules appear in pure culture. In symbiosis, with other bacteria, granular forms might appear which resembled *bacillus diphtheriæ*.

THE USE OF IMMUNE SERUM IN THE SEPARATION OF TYPHOID AND COLON BACILLI.

DR. ADOLPH GEHEMANN of Chicago read this paper. The difficulty in the separation of these species was due to the constant tendency of *bacillus coli* to overgrow *bacillus typhosus*. The search for specific retaining agents had not resulted in entire success. If an immune serum, active for one or the other species, could be used to restrain the growth of one without distributing the growth of the other it would be an ideal method of procedure.

He related previous experiments along this line.

The serum of rabbits immunized against *bacillus coli* could be used for this purpose, and gave results that were positive by artificial mixtures of the two species. The method could be improved by using the blood of immune animals direct and by rapid cultivation in the incubator. For practical purposes this method was not as yet certain, and the establishment of a control was difficult. On material containing other species, the restraining effect of carbolic acid did not disturb the purpose of the blood that was used. Some rather indefinite results on the isolation of typhoid from water had been reported.

AN EXAMINATION OF THE VALUE OF CERTAIN ANTISEPTICS USED FOR THE PRESERVATION OF ANTITOXIN AND OTHER IMMUNE SERUMS.

In a paper on this subject, DR. JOSEPH MCFARLAND of Philadelphia said this investigation had for its object the determination of the antiseptic and bactericidal values of chlorotone, formaldehyd, chloroform, tricresol and carbolic acid. It had long been believed that the addition of $\frac{1}{2}\%$ of carbolic acid and 0.4% of tricresol and 0.1% of formaldehyd would satisfactorily prevent the growth of microorganisms in the serums so prepared. As some of these reagents threw down a precipitate, the question arose whether the reagent itself was destroyed, and too little remained to properly preserve the serum.

The research was conducted by preparing the serums with the proper proportions of the germicides, then adding known numbers of bacteria and determining their diminution or increase. The results showed that, other things being equal, formaldehyd was preferable to phenol, but objectionable because it did not kill molds. Phenol was better than tricresol, and the recommendation was made that hereafter tricresol be given up as a preservative of the serum.

FORMALDEHYD.

DR. H. W. HILL of Boston read this paper. His conclusions were that humidity was an important factor in formaldehyd disinfection. An amount of gas which failed to kill in six hours at 42% humidity killed in twenty to forty minutes at 100% humidity. Considering the unavoidable leaks and absorption of gas by walls, etc., found in practice, practical disinfection required a rapid discharge of gas and high humidity. The best of the generators tested ran not more than 15 cc. per minute, and the condensed effluent yielded in the first ten minutes only about a 30% solution, hence generation by boiling in the ordinary way was too slow. Spraying was somewhat objectionable from the wetting down of the contents of the room. Atomization by steam current under fifteen pounds pressure yielded from six to eight times as rapid a flow of full strength, with no polymerizing, and produced a high humidity.

THE DIMINISHING IMPORTANCE OF PUBLIC WATER SUPPLIES, AND THE CONSEQUENT SIGNIFICANCE OF OTHER FACTORS IN THE CAUSATION OF TYPHOID FEVER.

This was a joint paper contributed by PROFESSOR W. T. SEDGWICK and MR. C.-E. A. WINSLOW of Boston. The authors undertook to show:

(1) That in the state of Massachusetts, and in many of the larger cities of the United States, the public water supplies were now unimportant as vehicles of typhoid fever.

(2) That in cities having pure water supplies the annual curve of typhoid fever mortality closely followed that of annual temperature.

(3) That in urban communities supplied with pure water there still remained a typhoid fever tax of from fifteen to twenty-five deaths per 100,000 population.

(4) That this tax was due not to any peculiar conditions of soil, locality or climate (endemic factors), but to incomplete disinfection of typhoid excreta, with subsequent infection of various articles of food and drink. These factors, when acting upon a few or many persons at one time, might cause obvious epidemics, sometimes large, though generally small; but more often, the infection, in moving from one point to another, followed different and obscure routes for different victims, and hence might be described as prosodemic.

(5) That the only remedies for such prosodemic typhoid were absolutely thorough and universal cleanliness and disinfection of excreta.

OFFICERS FOR THE ENSUING YEAR.

President, Dr. Walter Wyman, Washington, D. C.; first vice-president, Dr. C. P. Wilkinson, New Orleans, La., second vice-president, Dr. John L. Leal, Paterson, N. J.; secretary, Dr. Charles O. Probst, Columbus, Ohio; treasurer, Dr. Frank W. Wright, New Haven, Conn.

OFFICERS OF THE BACTERIOLOGICAL AND CHEMICAL SECTION.

Chairman, Dr. H. L. Russell, Madison, Wis.; vice-chairman, Dr. V. A. Moore, Ithaca, N. Y.; secretary, Mr. G. C. Whipple, Brooklyn, N. Y.; recorder, Dr. Henry D. Pease, Albany, N. Y.

Place of meeting, Washington, D. C., 1903.

THE PHILADELPHIA OBSTETRICAL SOCIETY.

STATED meeting Dec. 4, 1902, the president, DR. JOHN M. FISHER, in the chair.

SOME PRACTICAL POINTS IN THE EXAMINATION AND TREATMENT OF DISEASES OF THE URETHRA, INCLUDING SKENE'S GLANDS,

by DR. HOWARD A. KELLY of Johns Hopkins University (by invitation).

Under the term labia urethræ Dr. Kelly described a well-defined important anatomical structure which has hitherto escaped the attention of clinicians. These labia consist, not in the rounded margins of the external urethral orifice which have been termed labia erroneously, but in well-defined lips or labia which project from two to four millimeters beyond the external meatus, and by their mutual approximation cover and protect the orifice from the bacterial flora constantly bathing the vulva. If a tri-valve speculum is introduced into the vagina, and the blades separated, the labia urethræ are also separated and the urethra is exposed.

They also exercise the physiological function during coitus of protecting the urethral orifice. Sometimes these labia project beyond the urethral orifice on either side like long elephant ears, much more conspicuous relatively than the labia minora in relation to the vaginal outlet. Sometimes they are long and narrow. In other instances one lip is long and the other short. The margin is generally an even one or slightly crenated. In one case a fimbriated margin was found. They disappear with age and mechanical insults.

Skene's glands lie just within the urethra at the bases of these labia. The function of these glands is clearly to moisten the urethral labia, particularly during coitus during the violent displacement of the labia with the urethral orifice up into the vagina, when the labia urethræ need constant lubrication to obviate the injurious effects of attrition; in this way they occupy a position relative to the urethral orifice corresponding to Bartholin's glands in their relation to the vaginal orifice.

Their affections are catarrhal or gonorrheal. The speaker cited one case which was possibly a cyst of the left gland due to a closed duct.

They may be treated by injection, incision or excision. In order to inject them Dr. Kelly showed a little syringe which fully met all the requirements, consisting in a delicate blunt-pointed canula about five centimeters long and one millimeter in diameter, a piece of simple rubber tubing drawn over the end of the larger canula after closing the other end then made an excellent syringe, serving by the elasticity of the walls of the tubing to draw a few drops of fluid up the canula. With a simple syringe of this sort, the amount of fluid injected was also fully under control. After citing a number of cases treated by injection and by excision, Dr. Kelly referred to an interesting case in the hands of Dr. Hunner, his associate, in which smegma bacilli were found in the abundant secretion from one of these glands, showing how readily a tuberculosis of the urinary tract might have been inferred even though the vulva had been cleansed before the patient passed her water.

DISCUSSION.

DR. R. C. NORRIS: We have all been interested in Dr. Kelly's very clear and explicit description of the anatomy of these labial folds at the meatus and of their function. I think all of us, of course, have been more or less watchful of Skene's glands, just as we have learned to be of Bartholin's glands, to enable us to make a diagnosis and not to overlook any case supposed to be gonorrheal. It is my own practice to look for the so-called gonorrheal maculæ of Sanger in Bartholin's glands and for a similar appearance in Skene's glands, to aid in a snap diagnosis, as it were, of gonorrheal infection, later to be studied more accurately by bacteriological investigation.

The description of the labia of the urethra given by Dr. Kelly has been exceedingly interesting. I am sorry he did not go into the microscopical study of their anatomical structure. We frequently note that women who have borne many children have a puffy, red, swollen and sometimes eroded area at the orifice of the urethra, which, however, produces no pain and is not associated with the characteristic symptoms of caruncle. I have wondered whether or not these folds have anything in their microscopic structure to throw light upon the difference between the exquisitely painful caruncle and the erosion of vascularity above referred to, which is unassociated with pain. Dr. Kelly, no doubt, has had sections of these labia made, and it would be interesting to know his results. Furthermore, with his larger experience than ours in the study of these cases and his work in the urethral tract, I would like to ask whether, in addition to the silver preparations and carbolic acid he names, he has used any of the newer silver salts supposed to be of peculiar value in the treatment of gonorrhea. I refer to argyrol, protargol and similar silver salts. With the small area to be attacked and the results obtained so readily studied, it would seem to be an excellent opportunity to test thoroughly these newer preparations. I have been making use of them in gonorrheal cases, but my observations have not been sufficient to draw definite conclusions. I think no man has done his whole duty in studying a suspected gonorrheal case until Skene's and Bartholin's glands have been accurately studied.

Dr. Kelly's remarks are also of much interest concerning the macroscopic appearances of Skene's ducts and the delicate sense of touch which enables one to find these ducts. These facts should be of use to the general practitioner who has neither the time, knowledge nor facilities to study the condition bacteriologically.

DR. O. H. ALLIS: I have nothing to say more than that I must thank the lecturer for the subject which has been to me an exceedingly interesting one. I am especially interested, however, in one point, the point that Professor Dickson used to speak of, — that all physicians should wear gloves, and that their hands should be kept very delicate and very sensitive. For many years when I have been at the seashore I have amused myself with washing my hands with the sand, and have found how thoroughly it takes off the outer coat, the tough and corneal portion. I like to wash my hands with sand about once a week. It is an ordinary

experience for a surgeon to have some one see him who has a foreign body in some part; like a needle that has been run into a child's limb. Unless the fingers are very delicate they are apt to not detect it. When Dr. Kelly said he could feel these little ridges with his finger, I took it for granted that he either wears gloves or washes his hands with sand once a week or perhaps every day, or perhaps he has an exceedingly delicate skin. I shake hands with some surgeons and I should think they worked on the road with the pick. My own hand, although I have not done any hard work for years, is dry as a chip, and has a tendency to a corneal surface. For that reason I wash my hands once a week with sand, the finest I can get at the seashore, and I have slept with gloves on in order to keep my hands just as delicate and sensitive as possible.

As to any remarks upon the scientific bearing of this matter, I must leave that to the other gentlemen. I am much obliged to you, Mr. President, for saying that I am interested in anatomy. I assure you that I believe that a man who is not interested in anatomy has no business to be a specialist, or a surgeon. He cannot take at second hand; he has to go right to the cadaver and work. I was journeying with a gentleman last summer, and said to him that I was in the habit of doing a little dissecting every time I had an opportunity. He said he gave one or two days of the week to anatomy. I know progressive men are at work on anatomy. It is like all the works of the Infinite; you will never get anything beyond the first impressions. When Dr. Kelly has gotten through all his work, somebody may find that he has but touched the border. Another may take up the work where he left off and think no work has been done.

DR. JOHN C. DAcOSTA: I think the society and gynecologists generally are very much indebted to Dr. Kelly for what he has taught us not only of the pathology, but of the treatment of Skene's glands. Personally I feel obliged to him, because it has been a problem to me how to inject those glands. He has shown us to-night. In two cases within a week, I should have liked very much to have injected the glands. I took a rough-and-ready mode of cleaning them out. It was very simple, taking a small triangular probe with sharp edges inserting it into the glands, by twisting it around I hoped to set up an inflammation and thus extinguish them. Both cases had been cases of gonorrhea.

I have found fluid extract of hydrastis one of the most useful remedies in almost all inflammatory affections of the urethra.

I am also glad to hear Dr. Kelly speak of the hairpin. I have, as the staff of the Jefferson Hospital know, often used an ordinary hairpin as a urethral speculum, and find with Dr. Kelly that it is one of the most satisfactory specula we can use in the urethra.

DR. KELLY closes: I request that the gentlemen here will do me the favor of giving close attention to the anatomical structures I have described. Please do not draw your conclusions from the first two or three women you examine. You will find the best defined urethral labia in younger women, where the vaginal orifice is relatively intact. I have not yet been able to make microscopic examination of these structures, as I would not be justified

in cutting off the tissues in the living patient and I have not been able to secure a recent cadaver. I would expect that they would be much like the hymen in structure, as they seem to form a part of the hymenial system. The nitrate of silver has been so satisfactory in varying solutions, that although I have occasionally tried the other preparations, I have gone back to it, and I do not feel justified in making experiments. I am waiting for other clinics, especially the men's genito-urinary, to settle the relative value of other silver salts.

In giving massage to the urethra and the glands, I make a glove for my finger by wetting a thin layer of cotton and then applying it like a little cap over the last joint of the finger, which in this way protects the skin and protects the tissues. Sanger, in agreement with Dr. Allis, is emphatic as to the value of sand in keeping the hands fair, soft and clean, and Kroenig in Leipsic says that it is one of the best agents in removing the epithelial roughness always found on the hands of those using bichloride of mercury.

Recent Literature.

Cancer of the Uterus. A Clinical Monograph on Its Diagnosis and Treatment, with the After Results in Seventy-three Cases Treated by Radical Operation. By ARTHUR H. N. LEWERS, M.D. (Lond.), F.R.C.P. (Lond.), Obstetric Physician to the London Hospital; Examiner in Obstetric Medicine to the University of London, etc. Philadelphia: P. Blakiston's Son & Co. 1902.

This is a valuable clinical treatise by a practical worker and careful observer.

The author writes from an experience of seventeen years in the treatment of uterine cancer. He says in the preface: "My intention has been to bring into prominence the fact that if cancer of the uterus, whether of the cervix or of the body, be met with in a reasonably early stage, there is a very good prospect that permanent relief will be secured by operative treatment. This proposition should not be accepted as true without the clearest evidence. In support of it, I have brought forward full particulars of nineteen cases, fourteen of cancer of the cervix, and five of cancer of the body of the uterus, in which periods of from four to more than fifteen years have elapsed since the operation without any return of the disease."

Lewers thinks that, as only about five per cent of cases of cancer of the uterus now come under the observation of the profession at a stage of the disease when there is any prospect of permanent relief, it is of vital importance to insist on the recognition of the early symptoms of cancer. He thinks that this result will be most likely to follow when women themselves are more generally familiar with the significance of the early symptoms. He makes a practical suggestion to this end that the Cancer Commission of England send a short leaflet mentioning the essential facts which it is so desirable

for women generally to know, to every medical man whose name appears in the Medical Directory, with a request that he should distribute them to such persons — for instance, matrons, nurses, district visitors — as seemed likely to use the knowledge to good purpose.

The author properly lays great stress on the fact that pain and cachexia are late symptoms of cancer. When pain is present, it is, as a rule, too late for radical operation.

Forty-seven per cent of Lewers' one hundred cases of cancer of the cervix had had five or more children, while only thirteen per cent of a hundred consecutive patients not suffering with cancer of the cervix showed this degree of fertility. From this he concludes that if a woman has symptoms of cancer of the cervix, and is known to have had five or more children, the probability that she has cancer is distinctly increased.

From an investigation of the ages among one hundred patients, he concludes that the liability to cancer of the cervix between the ages of thirty and forty is almost the same as that between the ages of forty and fifty.

In the cases of cancer of the body, on the other hand, most of the patients are between fifty and sixty years of age, and sterile.

Cancer of the cervix is considered at length, and then its treatment. High amputation of the cervix was formerly practised with good results, but has now given place to vaginal hysterectomy, except in those cases where the fundus is so large that it cannot easily be delivered by the vagina. In this case, abdominal hysterectomy is done. The after results of the radical operations are carefully traced in two chapters, the histories of the cases being given in detail. They are also given in tabular form. Cancer of the body of the uterus takes up the last third of the book.

Sufficient dilatation of the cervical canal by means of sterile laminaria tents, followed by anesthesia, and further dilatation with the steel dilator, so that the operator's finger may be introduced into the uterine cavity, is advocated as a routine measure in diagnosis in cases suspected of having cancer of the body.

Lewers is opposed to the extensive abdominal operations in which the lymph glands are removed. He advocates abdominal pan-hysterectomy when the fundus uteri is much enlarged and the vagina small, and vaginal hysterectomy in other cases of cancer of the body.

To the American reader the details of his operations, as described, seem to be lacking in nice points of technique. For instance, it is to be noted that, after performing abdominal pan-hysterectomy, he does not close the peritoneum over the wound in the vagina, a procedure which prevents infection of the peritoneal cavity from a suppurating wound in the vagina, prevents prolapse of the intestine into the vaginal wound, and lessens the probability of involvement of the peritoneal contents in the event of a recurrence of the disease later on.

The publishers have done their work well. The paper is heavy, the type large, and the illustrations of the pathological specimens are numerous and well executed.

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MEDICAL TEACHING OF SENIOR STUDENTS.

If much discussion leads to definite results, we can have no doubt that medical teaching, after it has passed through the present transitional stage, will stand upon a much higher plane of efficiency than it has in the past. No doubt discussion does much to clear the air and bring into prominence present deficiencies and future needs, but it must nevertheless be through trial and experience of methods that decisions are ultimately reached. In the meantime, the public expression of opinion and the views of men of wide knowledge as teachers are always suggestive and valuable.

A meeting of the Academy of Medicine has recently been held in New York, at which the present condition of medical education was discussed with much vigor and enthusiasm. The main paper of the evening was by Dr. William Osler, on "The Need of a Radical Reform in the Teaching of Medicine to Senior Students." The curriculum of the first two years appears to offer far fewer problems than the more practical work leading into practice, which the older students are called upon to do. The discussion at the meeting was limited practically to the latter years of the medical course. Dr. Osler spoke of the progress that had been made in giving the student first-hand knowledge, but he felt that the work of the last year should be made still more practical, and that the question narrowed itself down to the whole relationship of the senior student to the hospital; he should be started forthwith as a practitioner, taught how to observe, given good methods and a proper point of view. It was a safe rule not to have any teaching except with a patient as a text. The hospital also needed reform, in granting far greater facilities to medical students than they at present have in most medical schools.

All the work of the third and fourth years should be put into the hospitals. Experience had shown that the hospital, students, physicians and patients were alike benefited by active teaching in wards and outpatient departments. A method of effecting this needed reform was outlined by reference to his own experience in giving practical instruction to relatively large classes of students. The dispensary teaching was especially insisted upon, in which the students studied patients at first hand, were encouraged to follow the course of their diseases and later to report on them. At stated times the ground covered was gone over in review in a so-called "clinical round-up." This was the essential training of third-year students both in medicine and surgery. A further method was to give men an opportunity to serve as clinical clerks in the hospital wards, as has been the custom in the London hospitals for many years, a plan to which Dr. Thayer referred at considerable length in our issue of Dec. 25. We are glad to note that in spite of his insistence upon this eminently practical instruction, Dr. Osler thought systematic lectures still had a place. Whether or not they should be given must depend upon the individual teachers. Occasional quizzes and personal discussion of cases were strongly recommended. The general trend of all Dr. Osler's remarks was toward a closer relationship of the student with disease as observed in the living person, and, hardly less important, a closer relationship between the instructor and his student. It is no secret that a part, at least, of Dr. Osler's unusual success as a teacher lies in the practical application of this latter fact. He has disciples when many others merely have students.

Dr. H. L. Burrell of Boston followed Dr. Osler, and described the reforms which have taken place or are under contemplation at the Harvard Medical School. Three methods were suggested of improving the teaching of senior students:

First, to have a curriculum which shall consist of minimum required work and maximum elective opportunity, the aim being to give a student in the first three years the absolutely essential knowledge of fundamental studies necessary to make a well-informed physician, the fourth year to be entirely elective. The plan in detail is as follows:

(1) The fourth year to be elective without any restrictions; (2) the total number of hours required of each student to be one thousand; (3) certain courses to be recommended as fitting a student to become (a) a general practitioner, (b) a specialist in, or teacher of, any department of medicine; (4) an advisory committee to be appointed with whom the students may consult concerning the selection of studies; (5) in general the forenoon hours to be

devoted to practical work in hospitals and laboratories, and the afternoon hours to the lecture room and laboratories. The first year and a half is to be devoted to the study of anatomy, histology, physiology, physiological and pathological chemistry, pathology and bacteriology. The second year and a half, completing the three years, is to be devoted to medicine, surgery, obstetrics, hygiene, pharmacology, dermatology, gynecology, pediatrics, neurology, syphilis, ophthalmology, otology, laryngology, legal medicine and psychiatry. During these three years the student is to devote himself to these studies at their minimum. During the fourth year he may devote his one thousand hours of time to such electives as he may select.

Secondly he hoped to see a plan somewhat similar to that which has obtained in the London Hospitals adopted, by which all fourth-year students should serve as clinical clerks and surgical dressers in wards or out-patient departments. It was maintained that properly administered, such a plan would be of distinct advantage to student, hospital and medical school.

In the third place the scope and character of lectures and section teaching should be more clearly recognized and more intelligently applied.

Following the presentation of these papers, remarks were made by Dr. Alexander McPhedran of the University of Toronto, Dr. E. G. Janeway, Dr. W. B. James, Dr. W. Gilman Thompson and others. There was a mild disagreement with the views advanced by Dr. Osler and Dr. Burrell. Dr. Janeway thought that the conditions in New York were such as to demand adherence to old methods of amphitheater demonstration; Dr. James was wholly opposed to electives at any time in the four years, approved of the amphitheater clinic, and thought didactic lectures should be superseded by other methods of instruction; Dr. Thompson was of the opinion that outside instruction might be overdone.

In closing the discussion Dr. Osler vehemently reasserted that the medical student should have improved clinical facilities. He said in part, as abstracted in the *Medical Record* :

"What was wanted was an intimate contact of the student and teacher. Such a system of instruction would almost do away with medicine from a theoretical standpoint. It was not the teacher, the textbook, or the lecture that was going to teach the student, but the patient, and he must see patients and patients and patients. The hungry sheep look up and are not fed upon the proper food, and they will not be until there is a closer affiliation between the out-patient department and the hospital wards with the students."

Space does not permit any detailed comment on the foregoing, but one thing is strikingly apparent, that Baltimore, New York and Boston have markedly different ideas of progress and reform. Baltimore insists upon the personal element in teaching, New York is inclined to be satisfied with the present state of affairs, and Boston, contrary to its usual reputation for conservatism, is the exponent of radical change. After all is said, we are inclined to think that good teaching depends in great measure on good teachers, and that teachers must be allowed much freedom in method, if the best results are to be attained.

THE MASSACHUSETTS HEALTH REPORT.

The thirty-third annual report of the State Board of Health of Massachusetts brings to us the customary record of excellent sanitary work. There were no changes in the personality of the board during the year, but since its close Dr. F. W. Draper has felt obliged to resign his membership. Dr. Draper's long and distinguished career as a sanitarian will make the work of any successor a difficult one, and is second only to his still greater service as medical examiner. But in both capacities he has well earned the lasting gratitude of his fellow-citizens.

The general death-rate for the year 1901 was the lowest ever recorded, — 16.82, with great prevalence, however, of scarlet fever, diphtheria, cholera infantum and smallpox. The 778 cases and 101 deaths from smallpox, due to neglect of vaccination, naturally emphasize the board's recommendation of state control of vaccine virus. The typhoid rate, 1.95 per thousand, maintains the steadily diminishing mortality. The consumption rate, 1.75 from 4.27 per thousand in 1858, undoubtedly in large measure reflects better sanitary measures, although largely due to greatly improved, but still defective, registration of causes of death.

Twelve new acts of the legislature are recorded in regard to matters affecting the public health.

In the routine work of the board the year has been one of great activity, with regular meetings, food and drug inspection, hearings on sewerage and sewage and water and ice and odors, examinations of rivers and water supplies, purification of sewage and water, stability of sewage effluents, lead poisoning from drinking water, meadows and rivers; sewer outlets, bacteriological studies, culture examinations for diphtheria and tuberculosis, blood examinations for typhoid fever and malaria, antitoxin production. The board did well to exceed its appropriation by only a trifle over a third of one per cent.

The one hundred and fifty pages devoted to the subjects of "Advice to Cities and Towns" and "Health of Towns" are full of interest, especially to boards of health and health officers, and they show a marked improvement in the character of the work which has been accomplished from year to year throughout the state.

The three hundred pages devoted to the broad questions affecting supplies of drinking water, including the examination of rivers and water supplies and sewage, chemically and bacteriologically, and the purification of sewage and waters, together with the same questions as treated in previous reports, have made the board a standard authority on these subjects at home and abroad.

In the inspection of milk, 6,109 samples were examined during the year, of which 4,372 were above standard and 1,737 below. Fifteen were colored with annatto, 31 with aniline orange; 42 were preserved with formaldehyde, 12 with boric acid. Of 116 samples of butter examined, 2 oleomargarine and 5 renovated were sold as genuine butter. One of 49 samples of cheese contained boric acid. Thirty-four of 73 samples of cocoa and chocolate were adulterated, chiefly with starch, the names of the manufacturers being given. Ten samples of coffee were adulterated, out of 143, with peas, wheat or chicory. The high price of apples made cider vinegar largely not what it purported to be.

Of foods other than milk, 2,530 samples were examined during the year, and of drugs 468.

In the seven years of the board's production of diphtheria antitoxin, 147,699 bottles of antitoxin have been issued, and with most gratifying results, as shown by the board's analysis of the mortality from diphtheria in the state for three years, which proves conclusively the importance of the earliest possible administration of antitoxin in the treatment of diphtheria. For the purposes of diagnosis and release from quarantine 4,119 cultures were made.

For tuberculosis 797 specimens were examined; for typhoid fever, 108; for malaria, 91. Great good comes from the voluntary reports of deaths each week from the cities and towns, the annual reports of local boards of health, the required immediate report to the state board of cases of diseases dangerous to the public health and from the annual reports made under the law that in each city and town having a population of more than 5,000, as determined by the last census, at least one member of said board shall be a physician, and the board shall send an annual report of the deaths in such town to the state board of health in such form as shall be prescribed by the board. The board's use of the information gathered from these several sources is practical and important, and may in time lead to

that general recognition of the value of vital statistics which we need.

The examination required by an act of the legislature of 1901 has shown some interesting results with regard to the danger from eating uncooked shellfish taken near sewer outlets, as the colon bacillus was found in such in repeated instances. The investigation is still in progress.

REVIVAL OF THE INDEX MEDICUS.

It is a source of the greatest gratification to men interested in the progress of medical science and to scientific men in general, that the "Index Medicus," formerly under the editorship of Drs. John S. Billings and Robert Fletcher, is to be revived under the auspices of the Carnegie Institution. It will be remembered that this most valuable index was discontinued in 1899 through lack of financial support.

Beginning with January, 1903, publication will be resumed under the title "Index Medicus, Second Series," the editorship being in the hands of Dr. Robert Fletcher, formerly associated with Dr. Billings in the same work, and Dr. Fielding H. Garrison. So far as we are able to learn from the preliminary notice which is in our hands, the general plan of the new index will be very similar, if not identical, with that of the former publication. It will be issued each month as early as possible after the first day, and will represent the literature of the preceding month. On the completion of each volume there will be an annual index of authors and subjects issued, the subject part of which is to be elaborately sub-divided, according to a classification resembling that of the index catalogue of the library of the surgeon-general's office.

We sincerely hope that with the highly favorable auspices under which the republication is undertaken there will be no possibility of a lapse such as we have been having for the last three years.

MEDICAL NOTES.

SMALLPOX AND VACCINATION. — According to the bulletin of the Chicago Health Department, of the four cases of smallpox sent to the Isolation Hospital during the past week, one was an unvaccinated school child in South Chicago, contracted from a previously reported unvaccinated case; one an unvaccinated adult, who contracted the disease in the southern part of the state and arrived in Chicago six days previous to the attack; the source of the contagion in the remaining two cases — colored adults — has not yet been determined, but they were both unvaccinated.

THE CAT FEAR.—Dr. Weir Mitchell, 1524 Walnut Street, Philadelphia, will be glad to have reliable information from physicians and others as to the cat fear, and especially as to those persons who are aware of the presence of a cat without seeing it.

SIX DEATHS FROM PLAGUE.—It is reported that six deaths from plague occurred at Mazatlan, Mexico, on Jan. 2. Several new cases have been reported by the health authorities. All business and commerce are at a standstill, and the town is strictly quarantined.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Jan. 7, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 33, scarlatina 31, measles 9, typhoid fever 17, smallpox 13.

BOSTON MORTALITY STATISTICS.—Twenty cases of smallpox were found in Boston during the week ending Jan. 3, and four deaths are reported by the Board of Health. The whole number of deaths in the city was large, and so was the death-rate. The death-rate for the week was 21.17. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 26 cases, 4 deaths; scarlatina, 32 cases, 5 deaths; typhoid fever, 14 cases, 4 deaths; measles, 8 cases, no deaths; tuberculosis, 20 cases, 23 deaths; smallpox, 20 cases, 4 deaths. The deaths from pneumonia were 32, whooping-cough 5, heart disease 24, bronchitis 12, marasmus 6. There were 16 deaths from violent causes. The number of children who died under one year was 41, under five years, 58, persons more than 60 years 67, deaths in public institutions 76.

A RECEPTION TO DR. MANLEY.—Dr. Thomas H. Manley of New York was tendered a reception by the medical profession of Hartford, Conn., at the Hunt Memorial, Monday evening, Dec. 22, 1902, and he gave a lecture on "Stenotic Obstructions of the Large Intestine." The following day, on the invitation of the medical staff, he operated at St. Francis' Hospital.

SMALLPOX IN MASSACHUSETTS FOR 1902.—In 1902 there were 2,263 cases of smallpox in Massachusetts, of which 1,015 occurred in Boston, as against 778 occurring in 1901. In a few small places the disease spread to epidemic proportions. Between 32 and 48 cases have been reported weekly for nearly three months past.

NEW YORK.

MEETING OF ASSOCIATION OF COLLEGE GYMNASIUM DIRECTORS.—The Association of College Gymnasium Directors held its sixth annual meeting at the

New York Athletic Club on Dec. 30 and 31, and a number of important papers were presented and discussed. Dr. Watson L. Savage, Columbia University, was elected president; Dr. Jay W. Seaver, Yale University, first vice-president, and Dr. W. A. Lambeth, University of Virginia, second vice-president. An interesting feature of the meeting was the exhibition by Dr. J. E. Raycroft of the University of Chicago of a plaster model of the average American college athlete, one-quarter life size, the dimensions of which were obtained by a comparison of the measurements of four hundred athletes, made in the gymnasiums of Harvard, Yale, Columbia, Cornell and other universities. One striking feature of the statuette, which is to be cast in bronze for the association, is the freedom from any abnormal display of muscle, such as is usually associated with the figure of the trained athlete.

MORTALITY STATISTICS.—The death-rate for the month of December was 17.48, against 16.20 in November and 18.96 in December, 1901. The corrected death-rate (excluding non-residents and infants under one week old) was 16.45. The following diseases showed a decline in mortality: The weekly average of deaths from typhoid fever decreased from 27.5 in November to 17 in December; from whooping-cough, from 7 to 3.75; from cancer, from 50 to 45; from diarrheal diseases, from 42 to 32.5 and from diarrheal diseases in children under five years, from 38 to 25.5. The following showed an increase in mortality. The weekly average of deaths from diphtheria and croup increased from 42 to 47.5; from scarlet fever, from 8 to 10; from measles from 3.5 to 6.75; from pneumonia, from 105.5 to 123.75; from bronchitis, from 35.5 to 42.75; from influenza, from 2.5 to 3.75; from pulmonary tuberculosis, from 139 to 145, and from diseases of the urinary system from 102.5 to 116.75. For the first time in two years there was no death from smallpox during the month.

The president of the Board of Health has reported to the mayor that the death-rate of New York City for 1902 was 18.74, which is considerably the lowest in the history of the department. The total number of deaths was 68,082, as compared with 70,803, and a death-rate of 20.02 for 1901; which is a decrease of 1.28 in the death-rate, and indicates the saving, for 1902, of 4,619 lives. The annual death-rates of the city since consolidation have been as follows: 1898, 20.26; 1899, 19.47; 1900, 25.97; 1901, 20.02; 1902, 18.74. The annual death-rate in each of the five boroughs is also the lowest on record. The rate for the two boroughs, Manhattan and the Bronx, which constituted the city of New York previous to consolidation, is 19.48, the lowest ever reported for that sec-

tion; the lowest previous record being in 1899, when the death-rate was 19.81. There were 582 fewer deaths from pulmonary tuberculosis than in 1901, and the report states that this result is due to scientific measures employed for the repression of the disease, which it is hoped will eventually be almost entirely eradicated. The usual recurrence of epidemic influenza was of short duration in 1902, and but few deaths resulted from it. There was a slight increase in the mortality from typhoid fever, but this was more than offset by a decrease of 100 deaths from smallpox. More than 800,000 persons were vaccinated by the department's physicians during the year. In scarlet fever there was a slight increase in mortality, but in diphtheria there was a decrease of 35%. For the first time in twelve years there was a decrease in the death-rate from cancer. Four thousand nine hundred and seven more births were reported than in the year 1901.

TRACHOMA IN SCHOOL CHILDREN TREATED.—Shortly before the close of the year the board of trustees of Bellevue and allied hospitals placed at the disposal of the Health Department the old building occupied by the Gouverneur Hospital before the erection of the adjoining new structure, for an eye hospital and dispensary; and during the last ten days of December, 2,128 cases of trachoma in school children were treated there, 116 of which were operated upon. Every child operated upon is detained over night, and in some instances for three or four days, in charge of nurses supplied for the work by the Gouverneur Hospital. From Sept. 8 up to the Christmas holidays 25,000 children were excluded from the public schools by the Health Department inspectors, a considerable proportion of this number being on account of trachoma.

Miscellany.

OUTBREAK OF TYPHOID FEVER TRACED TO OYSTERS.

THE *Lancet* of Dec. 20, 1902, refers to an outbreak of typhoid fever, occurring at Portsmouth, Winchester and Southampton, which, in the absence as yet of a thorough investigation, seems to have originated in contaminated oysters from the Emsworth storage ponds. At Winchester on Nov. 10 a complimentary dinner was given to the ex-mayor, and several persons who attended this banquet developed gastro-enteritis. Amongst those present were the ex-mayor, the dean of Winchester, Mr. Hanbury, M.P., and Dr. W. England, a well-known and greatly respected practitioner in Winchester. Dr. England died on Dec. 16 last, and the serious condition of the other invalids has been made known to the public through bulletins. At Southampton the chairman of the finance committee and his partner and the superintendent of the fire bri-

gade and some town councilors have been similarly affected, but are reported to be recovering. They all attended the corporation banquet held on Nov. 10. A waiter who was in attendance on the occasion, and who has since died, is stated to have suffered from typhoid fever. Several families in Portsmouth have also been attacked by typhoid fever, and it is reported that the source of the disease can be traced to the eating of oysters which came from Emsworth on the south coast. The oysters consumed at the Winchester banquet are understood to have come from Emsworth and the medical officer of health of Portsmouth has presented a report in which he attributes certain cases of typhoid fever to oysters from the Emsworth storage ponds. In connection with the Emsworth storage ponds the local government board report upon Oysters and Sewage Contamination shows that the drains discharge directly over the storage ponds. Since that report was written it is understood that certain of these drains have been intercepted and carried to the main sewer. This sewer still discharges alongside the oyster ponds, and on the rising tide the sewage cannot fail to pass into the ponds.

Obituary.

JOHN F. COUCH, M.D.

DR. JOHN F. COUCH of Somerville, Mass., died at his home in that city Jan. 4, aged fifty. Dr. Couch was born at St. John's, N. F. After graduating from school he went to work in a drug store and later entered the Harvard Medical School, where he received his degree in 1872. For a time he sailed as doctor on the barque "Kate Williams," and went as far as the Azores. He later took a course in obstetrics at the Rotunda Hospital Dublin, Ireland, remaining there six months. On his return he went to Somerville, where he was city physician, beginning in 1879, for three years, and a member of the Board of Health. He was a member of the Massachusetts Medical Society and a former president of the Somerville Medical Society. He was a trustee of the Somerville Hospital and one of the visiting physicians.

Correspondence.

ONE OF THE EARLY OPERATIONS UNDER ETHER.

WINCHENDON, Mass., Dec. 29, 1902.

MR. EDITOR: The following letter written by the late Dr. George Jewett, while a medical student, may be of some interest at the present time.

Dr. Jewett was for many years one of the leading physicians of Fitchburg.

The letter was addressed to the late Dr. Josiah Abbott, at that time a practitioner in Rindge, N. H.

Very truly yours,

J. G. HENRY, M.D.

BOSTON, Dec. 15, 1846.

DEAR SIR: In accordance with a promise I made you before I left home I embrace the present opportunity of giving you my whereabouts, and also a "nutshell view" of my present situation and advantages.

After as pleasant a ride as a snowstorm would admit, I arrived safe and sound in this city of "Yankee Notions," when like the frog in the olden times I commenced looking about to see among what people I had

fallen, and to find me a home. After being shown twenty rooms in the fifth or sixth story and running up and down stairs to my satisfaction, I concluded to stop at 276 Washington Street. I have a pleasant room, good coal fire, good table, etc., beside many other things which go to make up the sum of happiness and content.

I purchased one of the tickets to the lecture room, and matriculated, which would give me a right to the Clinical Lectures at the Hospital, occurring three times a week, and I procured the privilege of accompanying Dr. Bigelow in his morning visits.

I also attend all of the lectures when I am not in the hospital. Saturday is the day for operations, and a day which many an unfortunate subject of disease will long remember, and will recall the scenes which occurred on "Operation Day" with a thrill of horror.

Amongst the number of operations was one for the removal of the superior maxillary, which was affected with osteo-sarcoma. This you know is a fearful operation, but it was done by Dr. Warren and was successful. I will give you the case as it was one of particular interest.

The patient was a female about fifty years of age. Dr. Morton came forward and administered his "stupefying preparation," when Dr. Warren commenced by making an incision through the lip and down to the bone, carrying it to near the orbit of the eye, then by dissecting the integuments outwardly and making a large flap the diseased portion of bone was perfectly exposed.

By this time blood poured in streams, and running down the throat produced that peculiar kind of rattle, quaintly termed the "death rattle," while each effort of respiration was attended with a short suppressed scream. Suddenly the countenance became almost black, the hands also assumed the same appearance. This was an awful moment, and many who were unaccustomed to sights like this left the room. But the operator proceeded calmly as though nothing had happened. He seizes the stout bone pincers, for a moment the bones forming the roof of the mouth resist the force, another moment and they crackle under the forceps. Two or three efforts more and the work is done. But what an awful sight! The face cut seemingly all to pieces, the eyes starting from their sockets, the blood pouring in streams, the livid face and hands, the protruded tongue, that horrid rattle, the ineffectual efforts at respiration! All these combined truly made it an awful sight! Efforts were made to resuscitate her, and after a few moments by a convulsive effort of the chest the blood was thrown out and the lungs relieved. The patient was now freed from blood, the arteries ligatured, the lips of the wound brought together, and the patient left the room quite comfortable.

But there is one thing in particular in regard to this case and that was the condition of the arterial blood at the commencement of the operation, which was of a venous character. The same has been the condition of the blood in previous operations when the stupefying gas was given. Dr. Warren said that the great flow of blood did not alarm him as he thought it to be venous, but he found himself mistaken when he came to ligate the arteries. His explanation of the effect of the gas is this: When the vapor is given all the atmospheric air is excluded and nothing else inhaled, and there being little or no oxygen taken into the lungs the blood is not changed from venous to arterial, but retaining its venous character it is sent to the brain where it acts like the unrespirable gases—carbonic acid gas for instance—producing this stupor in which a patient may be cut all to pieces and not know it. The attention of all is being turned to this subject, and the safety of the community demands a thorough investigation of its character and mode of action.

There were also several other operations, among which was the removal of a scirrhus breast, amputation of the thigh of a young lady, the knee being affected with white swelling, removal of cancer from the lip and several others of less importance.

I attended a postmortem at the hospital one day last week, conducted by the younger Dr. Jackson, as he is generally called.

This was of great interest, but I must defer it till another time.

I remain your sincere friend,

G. JEWETT.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 27, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Scarlet fever.
New York . .	3,665,352	1,207	356	22.78	22.12	3.56	1.49	.33
Chicago . .	1,862,828	598	180	29.92	15.31	2.01	6.52	1.84
Philadelphia .	1,349,624	470	125	18.98	15.52	.85	2.98	.21
St. Louis . .	603,717	—	—	—	—	—	—	—
Baltimore . .	525,330	204	57	17.15	23.92	2.45	—	—
Cleveland . .	411,828	—	—	—	—	—	—	—
Buffalo . .	375,742	—	—	—	—	—	—	—
Pittsburg . .	341,401	119	35	23.68	19.32	2.52	2.52	—
Cincinnati . .	332,033	—	—	—	—	—	—	—
Milwaukee . .	304,975	—	—	—	—	—	—	—
Washington .	289,537	—	—	—	—	—	—	—
Providence . .	185,870	87	20	13.44	23.78	1.08	2.06	—
Boston . .	588,730	189	46	20.00	20.00	1.58	2.62	1.58
Worcester . .	127,337	26	11	11.55	23.10	—	3.86	—
Fall River . .	111,872	33	13	21.21	15.15	3.03	3.03	—
Lowell . .	99,574	40	12	12.50	25.00	5.00	—	—
Cambridge . .	96,384	15	2	20.00	20.00	—	—	—
Lynn . .	71,144	12	2	8.33	—	8.33	—	—
Lawrence . .	67,275	24	12	12.50	37.50	4.16	—	—
Springfield .	66,854	21	7	14.29	—	—	—	—
Somerville . .	65,823	24	7	16.66	41.67	4.16	—	—
New Bedford .	65,574	40	16	25.00	22.50	6.00	—	—
Holyoke . .	48,065	15	8	20.00	13.33	—	—	—
Brockton . .	43,308	10	4	20.00	—	—	—	—
Haverhill . .	40,392	11	3	9.09	9.09	—	9.09	—
Salem . .	36,567	17	3	23.53	—	—	—	—
Newton . .	36,336	8	1	37.50	—	—	—	—
Malden . .	35,390	6	1	33.33	16.67	16.67	—	—
Chelsea . .	35,264	12	1	8.33	16.67	—	—	—
Fitchburg . .	33,848	11	5	9.09	27.27	—	—	—
Taunton . .	32,759	7	1	14.30	—	—	—	—
Everett . .	27,114	4	2	50.00	—	35.00	—	—
North Adams .	26,583	6	2	—	16.67	—	—	—
Gloucester . .	26,121	12	5	16.67	8.33	16.67	—	—
Quincy . .	25,307	12	1	16.67	16.67	—	—	—
Waltham . .	24,612	8	2	12.50	—	—	—	12.50
Pittsfield . .	22,311	5	—	—	20.00	—	—	—
Brookline . .	21,670	—	—	—	—	—	—	—
Chicopee . .	20,390	12	9	33.33	16.67	—	—	33.33
Medford . .	20,014	4	—	—	25.00	—	—	—
Northampton .	19,460	8	1	12.50	12.50	—	—	—
Beverly . .	14,814	1	—	—	—	—	—	—
Clinton . .	14,645	4	0	25.00	—	—	—	—
Newburyport .	14,478	8	1	25.00	—	—	—	—
Woburn . .	14,285	—	—	—	—	—	—	—
Leominster . .	13,933	—	—	—	—	—	—	—
Hyde Park . .	13,858	—	—	—	—	—	—	—
Marlboro . .	13,609	—	—	—	—	—	—	—
Melrose . .	13,284	—	—	—	—	—	—	—
Westfield . .	13,038	1	—	100.00	—	100.00	—	—
Attleboro . .	12,846	—	—	—	—	—	—	—
Adams . .	12,813	—	—	—	—	—	—	—
Milford . .	12,516	—	—	—	—	—	—	—
Framingham .	12,109	2	1	—	—	—	—	—
Peabody . .	11,957	—	—	—	—	—	—	—
Revere . .	11,894	1	—	—	100.00	—	—	—
Gardner . .	11,544	9	4	33.33	22.22	—	—	—
Weymouth . .	11,337	4	0	25.00	—	—	—	—
Southbridge .	10,888	—	—	—	—	—	—	—
Watertown . .	10,600	2	—	—	50.00	—	—	—
Plymouth . .	10,386	—	—	—	—	—	—	—

Deaths reported, 3,809; under five years of age, 957; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 729, acute lung diseases 642, consumption 352, scarlet fever 26, whooping cough 26, cerebrospinal meningitis 7, smallpox 12, erysipelas 8, measles 23, typhoid fever 84, diarrheal diseases 88, diphtheria and croup 80.

From whooping cough, New York 2, Chicago 12, Philadelphia 6, Pittsburg 3, Providence 1, Boston 2. From measles, New York 10, Chicago 7, Philadelphia 1, Baltimore 2, Pittsburg 2, Gardner 1. From erysipelas, New York 4, Chicago 2, Pittsburg 1, Boston 1. From smallpox, Philadelphia 3, Pittsburg 3, Boston 6.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,880, for the week ending Dec. 13, the death-rate was 19.6. Deaths reported, 5,578; acute diseases of the respiratory organs (London) 399, whooping cough 95, diphtheria 94, measles 232, smallpox 8, scarlet fever 52.

The death-rate ranged from 9.8 in Tottenham to 38.0 in West Bromwich; London 19.2, West Ham 17.0, Brighton 10.5, Portsmouth 18.2, Southampton 16.5, Plymouth 18.0, Bristol 22.6, Birmingham 20.5, Leicester 14.2, Nottingham 20.8, Bolton 15.8, Manchester 21.4, Salford 21.2, Bradford 18.1, Leeds 18.0, Hull 21.9, New Castle-on-Tyne 24.0, Cardiff 21.6, Rhondda 17.4, Coventry 16.6, Liverpool 29.4.

METEOROLOGICAL RECORD

For the week ending Dec. 27, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.			
S. . 31	30.86	40	53	27	71	100	86	N	E	5	10	O.	R.	.50
M. . 22	29.88	50	58	42	87	78	82	S	W	10	10	O.	C.	.74
T. . 23	30.12	30	42	17	78	64	71	N	W	20	20	O.	C.	0
W. . 24	30.20	21	28	14	63	63	63	N	W	10	9	C.	C.	0
T. . 25	29.96	23	34	22	74	100	87	N	W	9	24	O.	N.	.27
F. . 26	29.78	27	32	22	94	74	84	N	W	5	8	O.	F.	.22
S. . 27	29.78	26	32	19	88	73	80	W	W	9	10	O.	C.	.04
31	30.03	40	23				79							1.77

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
31 Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 1, 1903.

BAILHACHE, PRESTON H., surgeon. Leave of absence for seven days on account of sickness, under paragraph 179 of the regulations.

MATHEWSON, H. S., passed assistant surgeon. Granted leave of absence for seven days from Dec. 2, 1902.

GRUBBS, S. B., passed assistant surgeon. Detailed to represent the service at meeting of the American Public Health Association, at New Orleans, La., Dec. 8-12. Dec. 6, 1902. To proceed to Ensenada, Cal., for special temporary duty. Dec. 12, 1902. To proceed to Mazatlan, Mexico, for special temporary duty. Dec. 30, 1902.

KORN, W. A., assistant surgeon. Granted leave of absence for seven days from Dec. 25, 1902, under paragraph 131 of the regulations.

SCHERESCHEWSKY, J. W., assistant surgeon. To proceed to Charleston, S. C., and assume temporary command of the service during the absence, on sick leave, of Acting Assistant Surgeon F. F. Sams. Dec. 31, 1902.

ROBERTSON, H. MCG., assistant surgeon. Relieved from duty at Chicago, Ill., and directed to proceed to New York, N. Y., (Stapleton) and report to medical officer in command for duty and assignment to quarters. Dec. 30, 1902.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., Dec. 26, 1902, for the physical examination of Chief Engineer Howison, E. C. S. Detail for the Board: Assistant Surgeon-General H. D. Geddings, chairman; Assistant Surgeon B. S. Warren, recorder.

Board convened to meet at Washington, D. C., Dec. 27, 1902, for the physical examination of Chief Engineer Maher, R. C. S. Detail for the Board: Assistant Surgeon-General H. D. Geddings, chairman; Assistant Surgeon B. S. Warren, recorder.

PROMOTIONS.

JOHN ACHENBACH to be pharmacist of the first class. Dec. 18, 1902.

E. S. MAGUIRE to be pharmacist of the first class, Dec. 18, 1902.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 3, 1903.

J. M. BRISTER, assistant surgeon. Detached from the "Frolic" and ordered to the "El Cano."

U. K. WEBB, assistant surgeon. Detached from the "Iris" and ordered to the Naval Station, Cavite, P. I.

H. A. DUNN, assistant surgeon. Detached from the "Vicksburg" and ordered to the "Frolic."

C. A. CRAWFORD, passed assistant surgeon. Detached from recruiting duty and ordered home to wait orders.

G. L. ANGENY, passed assistant surgeon. Detached from the "Lancaster" and ordered to the "Essex."

R. W. PLUMMER, assistant surgeon. Detached from the Naval Hospital, Chelsea, Mass., and ordered to duty at Chattanooga, Tenn.

G. F. FREEMAN, assistant surgeon. Detached from the "Essex" and ordered to duty at Naval Hospital, Chelsea, Mass.

W. H. ULSH, assistant surgeon, Dec. 22, 1902. Retired from active service, by reason of disabilities incurred in the line of duty.

H. C. CURL, passed assistant surgeon. Ordered to the Naval Hospital, Mare Island, Cal., for treatment.

NEW HAMPSHIRE MEDICAL EXAMINATIONS.

THE next Medical Examination held by the Regent of the New Hampshire State Board of Medical Examiners will be on March 3 and 4, at Concord, N. H.

RECENT DEATHS.

DR. DAVID JACOBSON, of Brooklyn, N. Y., died on Dec. 31, at the age of thirty-eight. He was graduated from the Medical Department of the University of the City of New York in 1888.

JOHN FRANCIS COUCH, M.D., M.M. S.S., died in Somerville, Mass., Jan. 4, 1903.

BOOKS AND PAMPHLETS RECEIVED.

Cytoscopic Appearance in Non-Tubercular Cystitis and Pyelonephritis in Women. By Edgar Garceau, M.D., of Boston. Reprint. 1902.

Chronic Suppurative Otitis Media. When Should Radical Surgery be Employed in Its Treatment, and of What Should This Consist? By George L. Richards, M.D., of Fall River, Mass. Reprint. 1902.

Empyema of the Frontal Sinus: Some Observations on Its Treatment. By George L. Richards, M.D., of Fall River, Mass. Reprint. 1902.

The Large Intestine Regarded as a Syphon. By R. W. Liff-wich, M.D., of London, England. Reprint. Edinburgh. 1902.

Life and Work of the Late Prof. Christian Fenger. Memorial Address delivered to the Graduating Class of Rush Medical College, April 4, 1902. By N. Senn, M.D., Ph.D., LL.D., C.M., Professor of Surgery, Chicago. 1902.

The Purse-string Suture in Gastrorrhaphy for Gunshot Wounds: An Experimental Contribution. By N. Senn, M.D., Ph.D., LL.D., C.M., of Chicago, Professor of Surgery, Rush Medical College. Reprint. 1902.

The Present Status of the Carcinoma Question. By N. Senn, M.D., Ph.D., LL.D., C.M., of Chicago. Reprint. 1902.

Therapeutics of Dry Hot Air. By Clarence Edward Skinner, M.D., LL.D. Illustrated. New York: A. L. Chatterton & Co. 1902.

The Practical Medicine Series of Year Books, comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued Monthly. Under the General Editorial Charge of Gustavus P. Head, M.D. Vol. II. November, 1902. Illustrated. Chicago: The Year Book Publishers.

Light: Its Therapeutic Importance in Tuberculosis as Founded upon Scientific Researches. By J. Mount Bleyer, M.D., F.R.A., M.S., LL.D. Illustrated. Reprinted from the Journal of Tuberculosis, October, 1902.

The ABC of Photo-Micrography. A Practical Handbook for Beginners. By W. H. Walsley, F.R.M.S., F.A.A.S. Illustrated. New York: Tennant & Ward. 1902.

The Proceedings of the Charaka Club. Vol. I. New York: William Wood & Co. 1902.

Diseases of the Eye. A Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. de Schweinitz, A.M., M.D. Fourth edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1903.

A Report to the Surgeon-General of the Army, on the Dissemination of "Surra" by means of the Biting Fly (The Stomoxys Calcitrans), with Recommendations as to Measures for the Prevention of this Disease. By Joseph J. Curry, M.D. Reprint. 1902.

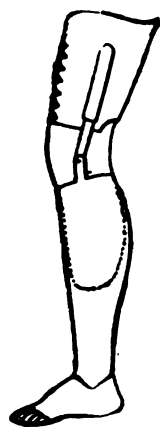
"Surra" or Nagana. A Report of an Acute, Fatal, Epidemic Disease Affecting Horses and Other Animals. By Joseph J. Curry, M.D. From the Army Pathological Laboratory, Manila, P. I. Reprint. 1902.

Blackwater (Hemoglobinuric) Fever: With a Report of Two Fatal Cases Occurring in the U. S. A. Military Hospitals at Manila, P. I. By Joseph J. Curry, M.D. Reprint. 1902.

The Nature of the Blood Changes Due to Attitude. By Joseph J. Curry, M.D., of Fort Bayard, N. M. Reprint. 1902.

Bubonic Plague. From the U. S. A. Pathological Laboratory, Manila, P. I. By Joseph J. Curry, M.D. Reprint. 1902.

Report on a Parasitic Disease in Horses, Mules and Caribao in the Philippine Islands. By Capt. Joseph J. Curry, M.D. Reprint. 1902.



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The following are the Courses provided in the Graduate Department for 1902-1903.

No.	Subject.	Instructor.	Place.	Time.	Fee.
1	Anatomy of the Joints	Dr. Dwight	Medical School	Special *	\$25
2	Dissection Courses	Dr. J. Warren	Medical School	After Nov. 1	20
3	Special Anatom. Instruction	Dr. Dwight	Medical School	Special *	Special *
4	Histology and Microscopy	Dr. F. T. Lewis	Medical School	Feb.	25
5	Elem. Human Embryology	Drs. Bremer and Woods	Medical School	Feb.—June	25
6	Advanced Embryology	Drs. Minot, Bremer, Lewis	Medical School	Feb.—June	75
† 7	Physiology	Dr. W. T. Porter	Medical School	Special *	Special *
† 8	Toxicology and Medico-Legal Examination of Blood	Dr. Wood	Medical School	Oct.—Jan.	30
† 9	Clinical Examination of Urine	Drs. Wood and Emerson	Medical School	Oct.—Jan.	30
† 10	Clinical Haematology and Examination of Gastric Contents	Dr. Hewes	Medical School	Oct.—Jan.	30
† 11	Physiological Chemistry	Dr. Pfaff	Medical School	Special *	Special *
12	Path. and Phys. Chemistry	Dr. Emerson	Med. Sch. or Boston City H.	Special *	Special *
† 13	Bacteriology	Dr. Ernst	Medical School	Special *	25
14	Practical Pathology	Dr. Councilman	Medical School	Special *	30-50
15	Pathological Histology	Dr. Councilman	Medical School	Special *	30
16	Pathological Anatomy	Dr. Magrath	Medical School	Special *	25
17	Neuropathology	Dr. Taylor	Medical School	Special *	35
18	Advanced Neuropathology	Dr. Taylor	Medical School	Special *	75-125
19	Surgical Pathology	Dr. Nichols	Medical School	April	25
20	Diagnosis of New Growths	Dr. Whitney	Mass. General Hospital	Special *	15
† 21	Comparative Pathology	Dr. Smith	Bussey Institution	Oct.—June	Special *
22	Clinical Medicine	Dr. Vickery	Mass. General Hospital	Oct.	15
† 23	Clinical Diagnosis	Dr. J. M. Jackson	Mass. General Hospital	Nov.—Feb.	15
† 24	Infectious Diseases	Dr. McCollom	Boston City Hospital	Oct., Nov.	25
† 25	Intubation	Dr. McCollom	Boston City Hospital	Special *	25
26	Sputum Analysis	Dr. W. H. Smith	Mass. General Hospital	Nov. Dec., Jan.	15
27	Clinical Medicine	Dr. Joslin	Boston City Hospital	April—May	25
28	Surgical Research			Special	Special *
29	Special Surgical Work			Special	Special *
30	Minor Surgery	Dr. Lund	Boston City Hospital	April—May	20
† 31	Minor Surgery	Dr. J. B. Blake	Boston City Hospital	Nov.—May	20
32	Clinical and Operative Surgery	Drs. Warren, Porter, Beach	Mass. General Hospital	Oct.—Feb.	30
33	Clinical Surgery	Dr. M. H. Richardson	Mass. General Hospital	Feb., May	
34	Clinical Surgery	Dr. Mumford	Mass. General Hospital	Feb., March, April, May	25
35	Minor Surgery	Dr. Mumford	Mass. General Hospital	Oct.—Jan.	25
36	Clinical, Operative, Genito-urinary, Pathological and Minor Surgery	Drs. Monks and Thorndike	Boston City Hospital	Oct., Nov., Jan., Feb.	25
37	Clinical and Operative Surgery	Drs. Munro and Lund	Boston City Hospital	Oct., Nov.	25
38	Genito-Urinary Surgery	Dr. Thorndike	Boston City Hospital	Oct., Nov.	25
39	Fractures	Dr. Scudder	Mass. General Hospital	Oct., Nov.	20
40	Surgical Diagnosis	Dr. Scudder	Mass. General Hospital	Nov.—Dec.	20
41	Genito-Urinary Surgery	Dr. Scudder	Mass. General Hospital	Jan.—Feb.	20
42	After Treatment	Dr. Scudder	Mass. General Hospital	Feb., March	20
43	Genito-Urinary Surgery	Dr. Watson	Boston City Hospital	April, May	20
44	Surgical Diagnosis	Dr. C. A. Porter	Mass. General Hospital	Oct.—Jan.	15
45	Minor Surgery	Dr. Balch	Mass. General Hospital	Feb., March	20
46	Minor Surgery	Dr. Balch	Mass. General Hospital	April, May	20
47	Clinical and Operative Surgery	Dr. Cobb	Mass. General Hospital	Oct.—Nov.	30
† 48	Orthopedic Surgery	Dr. Bradford	Children's Hospital	Nov.	10
49	Clinical Obstetrics	Dr. W. L. Richardson	Boston Lying-in Hospital	Nov.—Jan., May—June	25
50	Clinical Obstetrics	Dr. C. M. Green	Boston Lying-in Hospital	Feb., March, April	25
51	Clinical Obstetrics	Dr. Higgins	Boston Lying-in Hospital	Oct.	25
52	Clinical Obstetrics	Drs. Newell, Swain, and Friedman	Boston Lying-in Hospital	Oct.—May	25
53	Operative Obstetrics	Dr. C. M. Green	Medical School	Special *	25
54	Operative Obstetrics	Dr. Higgins	Medical School	Special	25
55	Gynecology	Dr. Haven	Boston City Hospital	Jan., Feb., March	25
56	Gynecology	Dr. C. M. Green	Boston City Hospital	Oct., Nov., Dec.	25
† 57	Gynecology	Dr. Storer	Carney Hospital	Oct., Nov., Dec., April, May, June	25
58	Gynecology	Dr. Storer	Boston Dispensary	Jan., Feb., March	25
59	Gynecology	Dr. Storer	St. Elizabeth's Hospital	April, May, June	25
60	Operative Gynecology	Dr. Davenport	Medical School	Special *	25
† 61	Pediatrics	Dr. Craigin	Children's Hospital	Oct., Nov.	20
† 62	Pediatrics	Dr. Craigin	Children's Hospital	Nov., Dec.	20
† 63	Pediatrics	Dr. Buckingham	Children's Hospital	Jan., Feb.	20
† 64	Pediatrics	Dr. Morse	Infants' Hospital	April, May	20
† 65	Pediatrics	Dr. Morse	Infants' Hospital	March, April	20
66	Dermatology	Dr. Bowen	Mass. General Hospital	Oct.—June	25
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† 69	Neurology	Dr. Knapp	Boston City Hospital	Feb., March	20
† 70	Neurology	Dr. Knapp	Boston City Hospital	April, May	20
† 71	Neurology	Dr. Walton	Mass. General Hospital	March—April	20
† 72	Psychiatry	Dr. Cowles	McLean Hospital	Special *	25
† 73	Otology	Dr. Crockett	Eye and Ear Infirmary	Feb.—April	25
† 74	Otology	Dr. Hammond	Eye and Ear Infirmary	Nov.—Jan.	25
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† 77	Ophthalmology	Dr. Standish	Eye and Ear Infirmary	April	25
† 78	Ophthalmology	Dr. Quackenboss	Eye and Ear Infirmary	Oct.—Nov.	20
† 79	Ophthalmology	Dr. Jack	Eye and Ear Infirmary	Oct.—Nov.	20
† 80	Rhinology and Laryngology	Dr. DeBiols	Boston City Hospital	Jan., Feb., March	20
† 81	Rhinology and Laryngology	Dr. Farlow	Boston City Hospital	April, May	20
† 82	Rhinology and Laryngology	Dr. Coolidge	Mass. General Hospital	Feb., March	20
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Original Articles.

A SYNOPSIS OF TEN WEEKS' SERVICE ON
THE BOSTON FLOATING HOSPITAL, CAMBRIDGE, MASS.

BY ROBERT W. HASTINGS, A.M., M.D., BROOKLINE, MASS.

THE fact that of the 690 cases sent to the Boston Floating Hospital this past summer, nearly 150 were sent by men of this society, makes it seem fitting that any medical report of the work should be first addressed to you. Evidently you know its location and purpose, yet a brief historical note may not be out of place.

The Boston Floating Hospital was and is in nautical circles the barge "*Clifford*," which formerly was towed down the harbor with excursion parties. It is said that 1,400 to 1,600 people have thus gone out on her. This will indicate to you something of the size of the boat and its possibilities as a hospital. When in 1893 the idea first came to Rev. Rufus B. Tobey that something similar to the work done on the New York floating hospitals might be started for the poor, sick little ones of Boston, he found a ready response. This boat was hired and went out five times in 1894. Thirteen trips in 1895, 14 in 1896, 25 in 1897, 56 in 1898, 57 in 1899, 63 in 1900, 66 in 1901 and 70 in 1902, show how the work has steadily grown. At first intended to be, like the New York boats, simply for the care of sick babies during the day, there came a time when one night there were two or three babies too sick to be sent home. Soon a ward was set aside for such very sick ones; then two wards, and finally two more. So that this last summer there were fifty-seven permanent cribs. Medical care and nursing, which at the first were purely voluntary, are now thoroughly organized. We have a resident physician, two medical services, each with visiting physician, senior and junior house officers and medical assistants, an out-patient service, with externe and medical assistants, which corresponds to the work first done on the hospital from 1894 to 1897, and a matron of nurses with about thirty nurses under her, most of them graduate nurses who come to take the training course, for successful work in which diplomas are granted.

This complete medical organization and equipment, which are largely the result of the thought and effort of Dr. Samuel Breck, made it seem to me well worth my time and effort to accept the position of resident physician for the past year. The results of my observations confirm those of the previous five years as visiting physician.

Our first trip was July 8. July 19 we had 60 patients, and began to refuse cases for lack of room. This crowded condition continued practically all the time till the second week in September. Some days we were obliged to refuse as many as twelve cases. In all, 128 cases were rejected or deferred, and 272 admitted. That is to say, in a summer which the health statistics of the Boston Board of Health showed to be unusually healthy, we were able to take care of only two in three of those who applied. This may explain to you why some case which you sent down was not received.

So extreme did the pressure become that on more than one occasion mothers sat with sick babies in their arms, waiting for a vacancy which could only come by the visit of the death angel. This will also suggest to you that the average case admitted was very sick and, indeed, 87 of the cases were in most desperate straits when received. This, in turn, affords an explanation for the 86 deaths, a percentage of 31. We were not discouraged by this, however, for German authorities state that the mortality in infants' hospitals is 75%, and Holt himself expects 45%. We do not claim to perform miracles, whatever may be the impression you have gotten from the newspaper articles. Please believe, what I know to be a fact, that the mention of any doctor's name in those reports is against the earnest protest of the physicians themselves, and apparently the inevitable result of being connected with a philanthropy about which the public desires to know everything. We try to furnish the little ones competent and continuous nursing care, accurately prepared food and plenty of fresh air. If you can secure these for your patients, they will do just as well in their homes as with us; for we do not claim to be more skillful nor more experienced than many of you. I shall endeavor to describe to you to-night how we seek to attain these three requisites and then briefly to state some of the lessons learned this summer.

Care.—Patients are admitted in very much the same way as to the Boston City Hospital. If day-patients, they are sent to the upper deck, styled Ward E. So far as possible, a tentative diet for these is ordered on the wharf, carrying out your suggestions if you have made any in the note or card which comes with the child. This makes it possible within fifteen minutes after the boat starts for suitable food to be given a baby which may have had no food for two or three hours. The externe with his assistants and nurses quickly determines the sickest of these day patients, and gives immediate attention to them. Under the supervision of the resident physician such medicine as is needed is ordered, and soon the regular routine of the day is started in this ward; for it combines with out-patient examination such hospital treatment as is possible in the limited time. The history of each patient having been taken and written out, the record is completed by a careful physical examination. Food and medicine are given at regular intervals. No food or medicine is allowed to be brought. The well children who could not be left at home are separated from the sick ones in a kindergarten, and the mothers have a chance to rest and breathe the fresh air themselves. Later in the day these mothers and well children have a substantial lunch, and the mothers a chance to listen to an instructive illustrated lecture, telling them just how to prepare modified milk, barley water, rice water, albumen water, etc., in their homes.

Now, all this is not so very different from what each one of you does in your contact with the cases; but we have the advantage that the child is with us under constant observation for six or seven hours, while you may be able to spend only a few minutes with each case. The improvement at the end of the day is sometimes astonishing, as doubtless you

¹ Read before the Norfolk District Medical Society, Nov. 25, 1902.

have yourselves noted. On the other hand, babies who gain during the day often lose all they gain and perhaps more, because of the hot, noisy ride home and the bad home surroundings of the night, and I trust that these brief notes will enable you more wisely to advise a mother whether she should leave her baby with us or not, as well as suggest to you the advantages which do accrue to the right cases.

Permanent cases go direct to the ward and are at once put to bed. There is the same careful history, and when the condition of the child will permit it, an accurate physical examination. Later this is supplemented by an analysis of the urine and examination of the blood. Ordinary cases are started on the routine ordered by the visiting physician. Unusual cases are seen by the resident physician, and suitable, immediate treatment ordered till the time of the regular visit of the visiting physician. These men usually came to us twice a day, at morning and evening. Whenever in their absence an emergency arose, it was reported to the resident physician and attended to by him. All cases were admitted and discharged by the resident physician, to whose care the patients were technically intrusted by the Board of Managers of the hospital.

A request for autopsy was made for every case of death where the religion of the parents did not forbid, and twenty-five such examinations were made. Nearly all of these were done by Dr. Walter R. Brinckerhoff, our pathologist, who is Dr. Mallory's first assistant at the Boston City Hospital.

So much for an outline of the hospital work. I trust it has not wearied you. Many details I have necessarily omitted. It is the work of a modern busy hospital, modified to meet the conditions and limitations of our time and space. Head nurses' duties, assistant nurses' records, special chemical and microscopical work of house officers and medical assistants, all form parts of the daily life and the "care" which strives to cure or, at least, relieve the little ones.

Food.—Our experience last year led us to believe that fresh, clean milk was better for babies, well or sick, than older Pasteurized or sterilized food. We desired to get clean milk of the morning's milking, delivered at the boat at 9 A.M. After various investigations an offer was received from the Walker-Gordon people, which was within the price limit set, and we visited their dairy out in Needham. If you have never seen a really clean dairy, it will well repay you some time to visit this one. You will there see how stables, cows, utensils and employes can be clean and kept clean and milk furnished with relatively few bacteria in it. There are other such stables near Boston, but they are not numerous, and it is of the very greatest importance that as physicians we insist upon clean milk. It will cost a little more, but where the health of children is at stake, the increase in expense is of no moment. Know where the milk that your patients have comes from, and insist that it is clean! We also received from the Walker-Gordon people 20% cream and distilled water. The milk and cream were, of course, iced.

We did not trust to their statements about the bacteria, but through the courtesy of Dr. Hibbert Winslow Hill, director of the Boston Board of Health Laboratory, on July 25, a sample of the

milk was tested and found to contain less than 10,000 per cc., and on August 4 the cream showed only 20,000 to 30,000 per cc. Feeling thus assured that our first material was all right, we set about testing our modifications and other preparations. Three formulæ are employed by us as stock preparations, styled, "A," "B" and "C" mixtures, with formulæ 1-6-0.6; 2-6-1; 4-6-1.5 of fat, sugar and proteid respectively. Twelve per cent cream is prepared by mixing milk and 20% cream, and this is diluted with 6% or 7% milk sugar solutions to produce these formulæ at the very time they are needed for use. Manifestly there was a chance for bacteria to enter, and we found that they did. Not less than thirty minutes of vigorous boiling sufficed to destroy the bacteria in the sugar solution; but this amount did the work, and Aug. 25 we received a favorable report from Dr. Hill, which was further confirmed on Sept. 9.

We therefore proved that it is possible to deliver to babies modified milk, which is practically sterile, without Pasteurization or sterilization, if sufficient care is taken in the preparation. If you believe that raw milk is better for babies, you can, therefore, be confident that it is possible to have it clean and pure.

With regard to this problem of raw *versus* Pasteurized food, we did not attempt a solution. None of our milk preparations this summer were heated beyond 100° F.,—this last at time of feeding. Hence our experience with these 690 cases lends approval to raw milk foods. The mothers, however, were always instructed in the art of Pasteurization, for we know that the milk generally sold to the public has millions of germs to the cubic centimeter.

We next tested our peptonized foods. These showed a great increase in the number of germs and a tendency not to hold together. We therefore used fresh extract of pancreatin and bicarbonate of soda, stopping the process when the first suggestion of bitter or the faintest acid reaction appeared, and bringing it at once to a boil for three minutes. This product was practically sterile. Our difficulty with the separation of the peptonized "B" and "C" mixtures was finally solved by peptonizing the 12% cream and then diluting with the sugar solutions, just as in the ordinary mixtures.

We did not make a large use of whey. During the last few weeks, however, we did try it on a series of cases. In its production we found much variation in the appearance of the fluid depending upon the methods employed. Another season we shall have these analyzed for fat and proteid. Using the method directed by Rotch we had a fluid containing no inconsiderable quantity of fat, and one which was well borne by the babies. We believe that whey for sick babies should be made with essence of pepsin and with whole milk, not skim milk. Perhaps a more extended experience, such as we certainly shall attempt next season, may correct these views.

Usually babies which came to us with gastrointestinal troubles were started on rice water. This method of treatment, started on one service, was soon adopted by the other visiting physicians. It was proven that a baby could be fed for two weeks

on nothing but rice water and only lose one half ounce in weight. The solution was made from flaked rice, such as may be bought at any grocery store and according to the directions printed on the package. The product was, therefore, partially dextrinized, since this rice has been partly cooked. Further efforts at dextrinizing by the addition of malt extract were not successful, and were succeeded by a mechanical mixture of equal parts of pure dextrin and flaked rice in the preparation. We do not know that this last, which we styled "dextrinized rice water," strictly speaking a misnomer, as you see, was any improvement on the plain rice water; but it also was well taken by the babies, and theoretically should be more digestible for those whose secretion of ptyalin is very small.

Babies who came to us with a history of vomiting were often started on the well-known albumen water or Jacobi's modification of that, which substitutes barley water for plain water. Barley water itself was but rarely used.

When real exhaustion was to be met, we used Panopepton or beef juice. The former was found to be really of very great value, and we used large amounts of it. When possible, however, we made use of our own beef juice. This was not prepared in the usual way. The meat of the "round cut" type is cut into dice one-half inch cube, slightly salted, and put into a clean fruit jar. This is closed and put in a water bath of not over 145° F. for one hour. The juice is squeezed in a meat-press, strained and kept on ice. The residue is mainly tough fiber, and the product very agreeable and nutritious. Much more is obtained in this way than in the ordinary way of blistering the steak and then pressing it. One hundred and forty-five degrees F. means as hot as you can put your hand into, and is easily maintained on the back of a kitchen stove. Care is, of course, necessary that it does not get too hot, else the meat will coagulate and the familiar old-fashioned beef-tea result.

Much more might be written descriptive of the methods of preparation and the efforts used to secure freedom from bacterial contamination and uniform products. The whole matter was very carefully worked out by our chemist, Dr. Charles E. Buck, a graduate pharmacist and senior in the Tufts Medical School. But the time will not permit. Perhaps, however, I have suggested a few practical points which may merit your discussion and assure you of the work we try to do.

Air.—The matter of fresh air was not a difficult problem this summer. There were very few hot days with high relative humidity. We therefore made use of our windows, just as you did. If we had better, fresher air, it was because all about us was a wide expanse of open water, from which the breezes blew unmixed with smoke or dust or foul odors. We have, however, down in the hold, an ice machine, steam pipes and a powerful fan which will take the hot air laden with moisture, freeze out all the moisture, warm it and send it in abundance to two of our wards, with a uniform humidity of 50% and a temperature of 72° F. Just what that means you must experience to understand. But we feel sure it has often meant life to a sick baby.

And now, what medical suggestions can we make to you? First, perhaps, our belief that these

diarrhea troubles of babies in the summer are infectious, just as typhoid fever is. We therefore keep flies away from them, destroy all the dejecta, and very frequently cleanse the hands and arms of doctors and nurses with a solution of cyanide of mercury. Since these precautions were instituted very few cases of re-infection or auto-infection have occurred. Before we were so careful they were not rare.

In dietetic treatment we accepted the dictum to cut off milk. Rice water or barley water are better than our mixture "A" even, which is about one of milk to five or six of water, and our experimental approval is unqualifiedly given to rice water. There is no practical harm and at least a theoretical advantage in the addition of dextrin.

Peptonized milk should not be disagreeable to the taste and need not be, and is an efficient food. Our use of it led to an important discovery very lightly touched upon in textbooks. Patients taking it had lumps in their dejecta. These were at once supposed to be curds, since they were not fat, and faulty preparation of the supposed peptonized food was charged. But careful tests showed that in a fair proportion of cases these lumps were neither fat nor curds, but mucus.

Nearly all our very sick cases had regular doses of brandy or whiskey. The charge that the brandy was inferior to the whiskey led us to have it analyzed by Dr. Charles Harrington at the Harvard Medical School. The results showed that best California brandy had 46% alcohol, while the best whiskey had only 39% alcohol.

A further means of stimulation of much value was normal salt solution under the skin, or, as it is technically called, hypodermoclysis. Sterile apparatus was always ready and warm, and was in daily, almost hourly, use. Every five or six hours and in amounts varying from an ounce to five ounces, given under the skin of chest, back or abdomen, was the rule. No harm resulted in any case, save two or three small abscesses, the cause for which was readily found in imperfect sterilization of the needle. It causes the baby little or no pain, and certainly seems to act as a powerful restorative. It can be readily given by a nurse, who must, however, give her entire attention to the matter.

Many of our patients refused to swallow their food. It was then given them by stomach tube or nasal tube. This, too, the trained nurse can do, and often after a day or two the usual method may be resumed. With us, this usual method was an eight-ounce bottle of Arnold sterilizer shape and a Davidson No. 26 nipple.

Enteroclysis or irrigation of the lower bowel was performed nearly seven hundred times. It was much more commonly used in the early portion of the season. This seems to be due to a growing feeling on the part of the physicians that cases for this treatment should be carefully selected. There were no bad effects. We commonly employed two quarts of solution, with a pressure of eighteen inches, through a flexible rubber catheter, Nos. 21 to 23, American scale, inserted gently twelve or fourteen inches. The usual solution was normal salt solution, sterile water or solution of soda bicarbonate from three drachms to the pint to one drachm to two pints. We also tried a solution of peroxide

of hydrogen $\frac{1}{2}\%$ to 4%, tannic acid solution, silver nitrate solution, lime water and creolin solution. This last was the only one which seemed to have any peculiar value. In strength of one-half drachm to two pints up to one drachm to a pint, it appeared to remove foul odor and especially to check bleeding. There were certainly several cases which, after careful irrigation with the creoline solution, failed to show the presence of blood in the movements which had previously contained considerable quantities. Reverse peristalsis was demonstrated by the appearance of the odor of creolin in the mouths of two patients and of the fluid itself in one.

For persistent vomiting nothing proved better than lavage, using two pints of normal salt solution.

We tested a few drugs and preparations. Panopepton, whiskey and brandy have been already mentioned. Fat-free tincture of digitalis was used in thirty-one cases, and with good effect. Seven cases of pneumonia were given the large initial dose of five or ten minims. The results seem to justify that rather heroic treatment. Tannalbin in doses of five to ten grains every two to four hours was efficient to check bloody movements which did not yield to any other treatment. Patch's "misco-line" — with the formula, in each fluid drachm zinc sulphocarbonate $\frac{1}{10}$ grain, salol $\frac{1}{10}$ grain, bismuth subcarbonate 1 grain, calomel $\frac{1}{10}$ grain, and pepsin $\frac{1}{2}$ grain — was tried on twenty-three out-patient cases with satisfactory results. A similar trial of a petroleum emulsion, much exploited as an intestinal antiseptic, was not at all successful.

Two or three relatively sure signs of approaching death were noted. One was the appearance of crown vomitus which did not contain blood or react to the hemin test. Another was the appearance of purpuric spots or streaks on the abdomen. In one case these very largely disappeared after the administration of a solution of gelatine, but the baby died. A third fatal sign is a drop of the temperature to 95° F. or thereabouts. There was no great difficulty in getting the temperature back to normal, but the babies died none the less surely.

Our postmortems taught us many things. Nearly every case of severe bowel trouble was proven to be, pathologically, acute follicular ileocolitis, with very marked thickening of the lower bowel, swelling of the follicles and often some ulcerations, and fatty degeneration of the liver. One case was met which justifies our clinical term gastro-enteritis, for all the inflammation was in the stomach and upper duodenum. The heart muscle was not usually much affected nor were the kidneys seriously involved. Two diagnoses of persistent ductus arteriosus and persistent enlarged thymus gland as causes of death deserve passing mention and later a more extended report.

I trust that this incomplete presentation of the work of the Boston Floating Hospital may prompt your continued helpful interest in it. During the past summer nearly a thousand people visited us, but of these barely a score were physicians. We should be glad to have you come, either morning or afternoon, that you may see just how the babies you send down are cared for.

A CASE OF RETINAL HEMORRHAGE IN A PATIENT OF SEVENTY-THREE. TREATMENT BY THE FARADIC CURRENT. COMPLETE RECOVERY.¹

BY HASKET DERBY, M.D., BOSTON.

IN 1898 Professor von Reuss of Vienna published in the *Graefes Archive*² an article on the use of the Faradic current in certain affections of the eye. It was entitled, "New Experiences in the Electric Treatment of Inflammatory Affections of the Eye." Using sometimes the hand of the operator, but more generally a small flat copper disc or conductor, held on the head by a strap and resting on a layer of wet cotton applied to the eye, he employed a comparatively feeble current daily for periods varying from ten minutes to half an hour. This form of treatment was used in cases of scleritis, iritis, iridocyclitis, consecutive vitreous opacities and intraocular hemorrhages. In many instances it appeared to do good, its analgesic action in iritis being found to be particularly frequent and satisfactory.

In closing his account of the application of the interrupted current to the treatment of intraocular hemorrhage, Von Reuss says:

"It consequently appears that fresh bleeding into the anterior chamber and into the vitreous is favorably influenced by the Faradic treatment, but it is well not to forget that fresh effusions of blood, for instance after operations, often spontaneously and quickly disappear. Electricity can scarcely influence hemorrhages in and under the retina."

In spite of this discouraging statement it occurred to me to try this treatment in a case of extensive retinal hemorrhage that came under my care during the past winter. It was the first case of the kind I had ever submitted to a prolonged course of treatment. For therapeutics there had seemed little place in this affection, particularly when occurring in advanced years, and betokening a probably atheromatous condition of the cerebral arteries. I had for many years advised such patients to leave the recovery to nature, and assured them that the injury might, to a certain extent, be repaired. Unless a fresh giving way of the vessels occurred, a portion of the lost vision might ultimately return. I had generally, for the sake of doing something, advised a course of iodide of potash, and warned the family physician of what was to be apprehended. After that I dismissed the case from my mind. In the comparatively infrequent event of my seeing the patient again, months or years afterwards, I had rarely found much improvement, especially when the hemorrhage involved the macular region. The eye was permanently disabled.

Mrs. Blank, aged seventy-three, had been under my observation since 1884. She had a considerable degree of myopia, combined with astigmatism. Her vision, with the best neutralizing glass, had never been brought up to the normal standard, but remained about seven tenths in each eye. From time to time, generally once a year, she had visited me for the purpose of having her reading glasses adjusted, her myopia and astigmatism, as well as visual acuteness, remaining substantially the same.

¹ Read before New England Ophthalmological Society, Nov. 11, 1902.

² A. T. O., Bd. xlvii, S. 898 et seq.

Oct. 9, 1901, she came in, complaining that there was failure of vision in the right eye, this having lasted since the previous July. I was then absent from the country, so she failed to consult me. There had been little change since the trouble first appeared. With this eye, which was externally normal, the vision was now less than one tenth, and she complained that the letters of the test card appeared "spotted." The other eye remained as before. On dilating the right pupil, numerous retinal hemorrhages came into view. They were scattered over the entire fundus. The largest hemorrhage was in the macular region, and was quite extensive.

The application of the Faradic current was commenced Oct. 17, and used, ten minutes at a time, three times a week, up to May 26. A single absence from the city of ten days, occurring in the early spring, formed the only interruption. Small doses of iodide of potash were also administered during all this time. The peripheric hemorrhages began to absorb much more quickly than the macular, being substantially gone before the large one in this situation had shown any signs of yielding. The first improvement was, therefore, in lateral vision, but central before long followed suit. Dec. 20 vision had risen to nearly five tenths, Jan. 7 to six tenths, and on Feb. 7 the macular region was nearly free. Slight vitreous haziness long persisted, but finally cleared up. May 26 vision was nearly seven tenths, all the letters on the line being correctly made out, though with some effort. As this was her original vision, and nearly equaled that of the other eye, treatment was now suspended. My last ophthalmoscopic examination was made Sept. 2, and was conducted in the country; the light available was not very good, but as far as I could see there was not a single spot of hemorrhage in the fundus, a very slight grayish discoloration alone marking the site of the more extensive blood patches. About Oct. 15 the patient visited me at my office here, and I found vision nearly eight tenths, slightly more acute than I had ever found it before.

This is but a single case. The recovery may have been due to other causes than the use of the current. It is possible that it might have occurred spontaneously. But it is surely an unusual instance of a *restitutio ad integrum* in a person of over seventy, of very full habit and in an aggravated case. The treatment is so simple and so easily applied that I trust other members of the profession will follow it up and report their results.

The little single-cell battery used was the "Baltimore." Leach & Greene of this city are ready to furnish the special connections for the eye, and it is only necessary to inform them whether a single eye or both eyes are to be treated.

In conclusion, a single word on the analgesic properties of the Faradic current. This fact, that local pain is thereby often relieved, is hardly appreciated at its proper value. Von Reuss has again and again found this to be the case in iritis and irido-choroiditis.

Speaking of the interrupted current he says (*loc. cit.*): "Its principal effect is that of relieving pain; in this we are seldom disappointed. The effect is generally promptly witnessed, sometimes indeed in a surprising manner. Thus I once summoned for my lecture a patient with iritis, whose presence was

most important to me. On the way he was taken with severe pain and blepharospasmus, and it seemed impossible to exhibit his case. I used the Faradic hand; in a minute and a half he was free from pain, could open his eyes and be exhibited to a crowded audience without difficulty." He goes on to say that the pain generally returns in a few hours, and that the length of the painless interval varies directly with the length of the application of the current.

Meanwhile we note the same effects from its use in other departments of surgery. Dr. Douglas Graham³ has found it of great value in mitigating the pain caused by the breaking down of adhesions of the joints. Complete relief has followed, twenty seconds after the use of the battery had been commenced.

According to Beard and Rockwell, teeth have been extracted and felons and buboes opened with little or no discomfort to the patient while a strong current was passing through the affected parts. If this be true, may not opiates be, to a certain extent, discarded in the treatment of painful inflammations of the eye? The experiment is certainly worth trying.

VESICAL APPEARANCES IN RENAL SUPPURATION.

BY EDGAR GARCEAU, M.D., BOSTON,

Surgeon to Out-Patients in St. Elizabeth's Hospital and in the Free Hospital for Women, Boston.

IN an article by the author in the BOSTON MEDICAL AND SURGICAL JOURNAL,¹ attention was called to the appearances of the bladder in cases in which the upper urinary passages are inflamed and suppurating. The conclusions then drawn were these: The first characteristic that attracts notice is the frequency with which some alteration, in the nature of ulceration or swelling, occurs about the orifice of the ureter on the side corresponding to the lesion in the kidney above. Thus, in the author's list of cases, which were nine, in eight this alteration was seen. In Brown's² list of eight we were not informed with exactness in all of the cases as to this point. In three, however, there was positive assurance of such alteration. In three others either no direct reference was made with regard to it or we were left in doubt. Thus in eleven out of the seventeen cases there was direct evidence given by cystoscopy, which at least excited suspicion that the upper urinary passage on the corresponding side was diseased.

It is fair to assume, therefore, that if lesions are present at or about the ureteral eminence, we may expect to find lesions on the upper urinary tract on that side. These observations are quite in line with those observed in tuberculosis of the ureter and kidney. Numerous observations are now on record which confirm this statement. The analysis of the six cases in which this alteration was not observed was interesting. In one case the bladder was so swollen as to forbid deductions being drawn as to the relative size of the eminences. In two cases the bladder was normal and the infection was

¹ Faradism as an Analgesic in the Loosening of Joint Adhesions. *The Practitioner*, London, August, 1898.

² Vol. cxlvi, No. 23, p. 689, and Vol. cxlvi, No. 24, p. 627.

³ Johns Hopkins Hospital Reports, 1901, Vol. x, Nos. 1 and 2. From H. A. Kelly's clinic, Baltimore.

confined to the kidney, as was proved by operation. In two cases no mention was made of the lesions in the vicinity of the ureteral orifice of the affected side. In one case a peculiar condition of affairs existed. It was the left kidney which was diseased, but the left ureteral orifice was normal and the right eminence was described as puffy and deeply injected. The urine from the right side was normal, while that from the left was purulent. No explanation was offered, and not so much would have been thought of it were it not that in another case³ very much the same condition existed. In this one we had all the symptoms referable to the right kidney, including a large tumor on the right side, while the right ureteral eminence was perfectly normal. Very purulent urine had been collected from the right ureter. Ulcerations were observed on the left ureteral eminence, but it should be stated that purulent urine had been collected from the left ureter. The amount of pus was very light, and at the last examination, made lately, no pus was found. This last case has been under observation since the article was written, and as the bladder has exhibited changes which are of great interest, it is deemed worth while to report the case in full.

Mrs. M., thirty-five years old, American born, married seventeen years. Her previous history was not remarkable. Her family history showed a tuberculous taint, one of her brothers having died of pulmonary phthisis. She was first seen in September, 1898. She was a thin, spare woman of slight build, of exceedingly nervous temperament, and she had lost a great deal of flesh and was much reduced in strength from the effects of her sickness. She gave the following history: Had always been subject to headaches, vertigo and attacks of nervousness. Her heart and lungs were negative; digestion was good, appetite rather poor, and she suffered somewhat from constipation. She had had one child, who was eighteen years old. She had had one miscarriage, and following this there was a history of "inflammation of the bowels," which confined her to bed for a long time. Her menstruation began at sixteen, was regular, lasted four days, and had always been painful. In 1880 the urinary history began. The first symptom was a severe pain in the right kidney region, the pain leading down the course of the ureter, of agonizing character and of such severity that she was obliged to take large quantities of morphine to control it. The pain lasted for a week, during which time she was part of the time unconscious. She does not remember now if there was any hematuria during this first attack. The next attack of pain occurred a few months later. It was short in duration and less severe. Since that time she has had severe attacks of renal pain several times each year, and there has always been soreness and more or less pain all the time. There was no history of catheter infection nor of gonorrhea, nor of rectal disease. Micturition began to get frequent and painful two or three years after the onset of the disease. It kept getting worse and worse until she was practically an invalid. She had to urinate ten or twenty times a day, and during the night she always had to get up at least ten or twelve times. There was no incontinence. The pain in the right kidney region

was always localized. It was of a deep, boring character; it often disturbed sleep, and pressure over the kidney was painful. In 1891 she was operated upon for stone in the bladder, by Dr. James R. Chadwick. This operation gave some relief, but the urinary and kidney symptoms still persisted. In 1892 a vesico-vaginal fistula was made by another surgeon, in the hope of curing this cystitis. The fistula was allowed to remain open for two or three years, and then the patient, becoming tired of it, resolved to have it closed. Several operations were performed by various surgeons, which were unsuccessful. In September, 1898, an ether examination was made by the author, with the following result: In the vagina two small, minute fistulæ were seen just behind the vesicle neck, close to each other. Each admitted a small probe. Through the cystoscope the bladder was very red but not granular looking; excavated ulcerations were seen at the side of the left ureteral orifice. Each was one centimeter long and one half a centimeter wide. The excavations were shallow, but they had well-defined edges. The right ureteral eminence was normal in all respects. Both ureters were catheterized. The right catheter slipped out, hence no urine was obtained from this side. The urine from the left side showed a slight sediment, which consisted of pus chiefly, free and in clumps, some blood, much free fat, a few granular casts of small diameter, a few large hyaline casts with free fat adhering to them; no tubercular bacilli found. The right kidney was found to be enlarged.

The vasico-vaginal septum was incised through the fistulæ, the edges pared and sutures taken.

The operation was successful, and there was no more leakage.

When she was about to go home, she was told to wash out the bladder herself twice every day with a 2% solution of boracic acid. This she has faithfully done up to the present time.

The diagnosis of the case was stone in the right kidney with suppuration, and probably stone in the left kidney as well. She did perfectly well from the time of her operation until July, 1902. During this interval the bladder bothered her moderately, but she had been in very much better health than she had for many years previously. There had been some pain in the kidney, but it was no more than she had been having during previous years. She was seen the 15th of July, 1902, and she gave this history: Two weeks before, she was riding in an electric car which was going at a high rate of speed. The motorman was obliged to stop the car suddenly on account of an obstruction on the track, and the sudden stopping of the car threw her violently against the seat in front of her. Her bladder was full at the time. Immediately she felt a gush of urine in the vagina, and she had been wet ever since the accident. On examination the milk test showed that the fistula had reopened and was discharging urine in quite large amounts. In November, 1902, at her urgent request, the fistula was operated upon again and with partial success. At the time of the operation a cystoscopic examination was made with the idea of seeing if there had been any change in the appearance of the bladder. To the author's great surprise the bladder was found to be almost entirely normal in appearance. The

³ Case V, author's list.

ulceration about the left ureteral orifice had entirely disappeared. Both eminences were perfectly smooth, of normal size, of no abnormal redness, and there was nothing about either of them which suggested in any way a lesion in the kidney above. The bladder, as a whole, was injected slightly in excess of normal, but the individual blood vessels were not engorged, and there was nothing in the appearance of the bladder which suggested chronic cystitis. The right kidney was larger than the left one. No attempt was made to catheterize the ureters, as it was not wished to mask the diagnosis by adventitious blood; but the urines were separated by use of the Harris instrument, with the following result: The right ureteral urine was pale, very thick, and it was a long time before it flowed through the instrument. Two cubic centimeters were collected in ten minutes. The odor was very foul. There was a urea percentage of .5%. The sediment consisted of large quantities of pus, a little blood, a few hyaline and granular casts and a few large-sized epithelia. The left ureteral urine flowed freely, and 8 cubic centimeters were collected in ten minutes. It contained 1.51% of urea. It was of an amber color, and the sediment, which was slight, contained *no pus*. It was made up of spindle-shaped epithelia, a little blood, a few hyaline and granular casts. It was evident from this examination that the left kidney was not seriously diseased and the presumption is that there had been purulent pyelitis or ureteritis on this side which had since disappeared. The right one was in a far-advanced stage of destruction. It has been proposed to her to have a radiograph picture taken of her right kidney, with the idea of discovering a stone; but she has steadfastly refused to allow this for some unknown reason. Stone is strongly suspected from the history of the case, and from the fact that guinea-pig tests have proven negative as regards tuberculosis.

The great interest in the case lies in these two points: First, that a suppurating kidney may exist in the body and that the corresponding ureteral eminence in the bladder may not be at all diseased. Second, that long-continued boracic acid vesical injections will and do, in these cases, reduce the intensity of the cystitis to almost *nil*. The diagnosis of a suppurating kidney in all cases like this one must be made by seeing purulent urine exuding from the corresponding ureteral orifice.

In conclusion we may say that in most cases of suppurative inflammation of the upper urinary passages, lesions will be seen at the site of the corresponding ureteral eminence, but that sometimes this sign is totally wanting. The sign, therefore, is not positive.

THE TREATMENT OF HAY FEVER.

BY LORENZO B. LOCKARD, M.D., DENVER, COLO.

THE treatment of hay fever must be considered under two heads, — prevention and palliation.

By preventive procedures from 60 to 80% will be rendered immune; by the palliative almost complete relief will be gained by the great majority, comparative comfort by the minority.

In nearly all of the remaining 20 to 40% of those subjected to prophylactic treatment, striking ame-

lioration will result, with fair prospect of complete freedom the succeeding season.

Even after the attack has well begun, a practical cure can be effected in many during the first few days of treatment. By a "practical" cure I mean the possibility of withholding all local sedative applications without relapse.

PREVENTIVE TREATMENT.

The preventive treatment must be both local and constitutional; the one to be undertaken in the fall immediately upon the cessation of the annual attack, the other to be inaugurated some four to eight weeks in advance of the day upon which an attack is expected.

LOCAL TREATMENT.

This may be summarized by saying, "Correct all abnormalities; if none exist, cauterize lightly the mucosa of those areas which are known to be particularly susceptible." In nearly all cases of hay fever some departure from the normal is found, usually in the form of an obstructive lesion.

Bosworth claims that this is the sole condition found in these cases, and while this may be accepted as a general rule, there are numerous exceptions. That a normal mucosa is found in a fair proportion of our cases is well recognized, and during the past season I have had one patient with a high degree of atrophic rhinitis, a condition which the same author says is never associated with hay fever.

He writes: "I have never seen a case of hay fever occur in connection with atrophic rhinitis or syphilitic disease whereby the lumen of the passages was abnormally increased. In all cases which have come under my own observation the lesion has been an obstructive one."

Whatever the abnormality, it must be corrected; if none presents, I cauterize lightly with galvano-cautery the mucosa of both turbinates. By this cauterization, if carefully done, it is possible to so obtund the sensibility that nearly all irritants can be inhaled with impunity. This widespread cauterization has been severely condemned by many, but I have never seen other than good result.

Even when the nose appears normal it is frequently possible, after careful search, to locate areas of hyper-sensitiveness, and cauterization of these spots will then suffice.

The treatment of the nose may be delayed until spring if necessary, but when undertaken early a longer period for complete recuperation is afforded and the results are better.

CONSTITUTIONAL.

The general treatment is begun at least four weeks before an expected attack, and is given with three objects in view:

- (1) An increase in elimination and decrease in production of uric acid.
- (2) The correction of any existing neurosis.
- (3) The removal of constitutional or local abnormalities.

An excess of uric acid acts in two ways: first, by being directly accountable for the manifestations of the disease through its local irritant action upon the nasal mucosa, and, secondly, by being one of the most potent factors in the causation of various

neuroses. For this condition we administer for several weeks large doses of alkalithia or sodium salicylate, at the same time prohibiting all foods which form uric acid in excess, namely, meats (except in moderate quantities), carbohydrates, spices and condiments, tea, coffee and cocoa, alcohol, cheese, and certain vegetables, such as potatoes, cabbage, onions and celery.

A fair degree of exercise must be taken and water drunk in moderate quantities (from one to two liters daily).

1. NEUROSIS.

The various hygienic procedures known to be of benefit must be rigorously enforced. Of remedies having a tonic influence upon the general nervous system we have many, each in turn vaunted as a specific, but those which seem to me to be of most general service are such combinations as the following :

Brucine phosphate	1-10 gr.
Ext. hyoscyamus	1-2 gr.
Quinine valerianate	2 gr.
Camphor	1 gr.

One such pill four times daily.

Zinc phosphide	1-10 gr.
Sod. arsenate	1-20 gr.
Reduced iron	1 gr.

One, three times daily.

Strychnine sulphate in gradually increasing doses up to 1-20 grain thrice daily, for several months preceding an expected attack, is frequently of considerable value.

If, immediately preceding an expected attack, the patient is nervous, a very common condition, I rely upon the quieting effect of chlorotone, and through this influence I believe it is sometimes of service in warding off attacks.

Occasionally we find evidence of gout, rheumatism, dyspepsia and other abnormal conditions, and they must be combated.

Under such prophylactic procedures we may anticipate a large percentage of cures, estimated by various observers at from 50 to 80%.

In a total of nearly forty cases in the past two years, my percentage has been about 80.

In those cases dependent upon rag weed as an etiologic factor, Curtis claims to have immunized about 60% by administration of liquor ambrosia, but as the formula is secret, I have not administered it in any cases. In several instances I have given the fluid extracts of ambrosia and solidago for the relief of the developed disease, where other remedies had failed, with good results.

Unfortunately the great majority of sufferers come to us only after the attack is fully established, asking for palliation.

Until recently we could do little more than say to them, as Bishop has so aptly expressed it, "Suffer little children, for of such is the kingdom of heaven." Now, thanks to new therapy and a new conception of the etiology, we can promise partial relief in all cases and complete amelioration for the great majority.

ABORTIVE TREATMENT.

Occasionally, even at this period, much can be accomplished by local treatment. In a case reported

by the author in the *Laryngoscope* of November, 1898, by a partial turbinectomy performed at the height of one of the severest cases I have ever seen, immediate and complete relief was given. For three nights preceding the operation, the patient had not closed his eyes on account of the accompanying asthma, but this ceased at once upon removal of the offending body, and the following morning he returned to work in a large seed house without relapse. Such results must be rare, but it shows that operative procedures, even at this time, may sometimes be permissible and advantageous.

If, in any case, the nasal occlusion cannot be overcome by the usual remedies, I do not hesitate to cauterize or amputate the involved parts. Each operation must, however, be as restricted as is consistent with good results, in order to guard against excessive swelling and irritation.

In all cases I administer nitro-muriatic acid (not the dilute), three to five drops after meals and before retiring; and in only a few cases has it completely failed. Upon omitting a single dose, however, the symptoms recurred.

Occasionally after prolonged use, the acid will cause diarrhea, and if this occurs we can substitute for the time being the acid phosphates, but I believe them to be much less efficacious than the pure nitro-muriatic. In several cases in which the acid phosphates failed, when given by other physicians, the nitro-muriatic gave almost immediate and lasting relief.

Lemonade will frequently be of value as a temporary makeshift. The acid I consider almost a specific; it fails no oftener than other so-called specifics, and in the great majority relief is almost immediate, that is, within twenty-four or thirty-six hours.

In twenty-seven cases treated during the season of 1901 by this method, twenty-four were almost completely relieved. Two were benefited to a slight degree, and in one instance there was, for a time, complete failure. In this case, after failure to secure relief, the patient went to the mountains for a week, where she was entirely free. Immediately upon her return the old enemy raged again, but it was at once subdued and held in check for the balance of the season by the same remedy that had previously failed.

For the nasal discomfort, adrenalin chloride is a remedy of great power. More efficacious than cocaine, it does not lose its power, no matter how frequently used, and having no deleterious constitutional or local effects can be used *ad libitum*.

I do not believe it ever fails where the swelling is short of the point where nothing but surgical procedures can avail.

In all cases I have the adrenalin followed by some such oily spray as —

Camphor	5 gr.
Pine-needle oil	3 gr.
Glymol	1 oz.

This spray, or one of a simple oil, should be used whenever one goes into the open air, the oil base forming a coating for the mucosa that protects to a certain extent against dust and pollen.

Under this treatment the intolerable itching of the eyes disappears, the conjunctiva clear, the nose remains patulous and the hydrorrhea vanishes.

Occasionally this last symptom persists and then atropine alone is indicated, or if any irritation remains, in combination with morphine and caffeine.

In those rare cases where the acid treatment fails to produce the desired results, it may be attained by the internal administration of the dried suprarenal glands, five grains, three to five times daily. In some cases their action is most beneficial. In one of my cases the tablets gave complete relief and in one severe abdominal pain followed within a few moments after each dose of five grains. This occurred so constantly, even when their use was resumed after a withdrawal of several weeks, that there could be no question as to the cause. If the itching of the eyes is not relieved, the wearing of smoked glasses and the use of some such simple eye wash as boric acid with camphor water will frequently suffice.

The instillation of a few drops of a 1:1000 adrenalin chloride solution will frequently give a surprising result.

While the action of the gland upon the eye is said to endure for not more than thirty to sixty minutes, I have found that its use will frequently cause alleviation of the itching throughout the entire day. Why this should be so I do not know.

During the past season I have given to three patients the fluid extracts of *solidago* and *ambrosia*; one was completely relieved within forty-eight hours, a second stated that they relieved her more than any other remedy tried, and in the third no change was noticed. Owing to the impossibility of getting sufficient quantities of the drugs, no further trials could be made. In connection with other treatment they might well be tried in all cases.

The wearing of nasal masks I consider worse than useless; never have I seen the slightest benefit result, and the discomfort occasioned is usually as great as that of the disease for which they are used. While the treatment outlined is usually sufficient to overcome an accompanying asthma, it occasionally fails even when the coryza manifestations have been subdued. In such instances it is wise to cauterize the posterior turbinates and septum, for hypersensitive areas at those points are peculiarly liable to provoke asthmatic seizures.

In several instances I have been able to cut short an attack in this way; if unavailing, it is necessary to resort to some one or more of the various antispasmodics. A simple procedure which has sometimes been efficacious is the use of the cold douche to the spine before retiring. In this connection it is interesting to note that ice bags applied to the spine will sometimes abort a typical attack of hay fever.

For this form of asthma I have found nothing so generally useful as large doses of *dracontii* in combination with belladonna, spirits chloroform and *altheæ*.

In conclusion I will consider the rationale of this treatment. In the production of the disease we recognize three factors, —

(1) A neurosis.

(2) Some lesion or hypersensitive condition of the nasal membranes.

(3) The inhalation of pollen or certain odors.

That some derangement of the nervous system renders certain individuals susceptible to the action

of pollen or other irritants is evident, both from the history of the individual and from the clinical picture presented. In corroboration of this statement we have the following facts: —

(1) To a certain degree the disease is hereditary; several members of the same family frequently being affected.

(2) The prevailing family tendency is in the direction of nervous affections.

(3) In the great majority of cases the patient is himself of a nervous temperament.

(4) Periodicity of attacks. They usually recur at the same time each year, and last the same number of days each season without respect to the varying climatic conditions of the different years.

(5) Extreme nervousness preceding attacks and exacerbations.

(6) Influence of suggestion and anticipation. This is shown by the periodicity of attacks and the influence of sudden emotions either in originating or preventing attacks. Mackenzie reports a case in which an attack of rose cold was precipitated by smelling an artificial rose, and one that came from looking at a picture of a hay field. I have one patient whose attack never begins until she has seen another sufferer, and whose symptoms are always aggravated by hearing another patient sneeze.

(7) It is a so-called "aristocratic" disease; that is, it occurs chiefly in that class most subject to various neuroses, a small minority only coming from the lower walks of life.

That some neurosis is a potent factor is evident, and that the uric acid diathesis is largely accountable is generally accepted. That diverse nervous phenomena may result from an increase of uric acid in the blood is well recognized, and it has been proven that this condition obtains in hay fever. Because we have some abnormality of the nose and the presence of irritating qualities in the air, this setting free of the acid provokes nervous coryza instead of some one of the other conditions recognized as due to the diathesis.

Bishop says, "Heredity is probably the chief factor in determining the direction in which the uric acid diathesis will afflict an individual, whether it results in migraine, angina pectoris, asthma, nervous catarrh (hay fever) or some other neurosis; but, undoubtedly, accidental or acquired conditions may act as directing or localizing agents." The strongest proof of the action of uric acid is afforded by experimental therapy; attacks can often be produced and controlled at will by treatment and diet.

The administration of sodium bicarbonate to increase the alkalinity of the blood in one subject to hay fever, results in almost immediate aggravation of all symptoms; counteract by acids, and alleviation ensues. For quick relief of an attack we do not aim to eliminate but to precipitate an excess from the blood, elimination being accomplished in the periods between attacks. Conclusions based upon such results are definite.

2. NASAL ABNORMALITIES.

That some derangement of the nasal mucous membrane is requisite has been so conclusively demonstrated that it need not be here discussed.

3. POLLEN.

Neither of the preceding causes, acting alone or together, is sufficient to provoke an attack. Added to them there must be some irritant to be inhaled, usually in the form of pollen, although sometimes a simple odor is sufficient.

Completely remove any one of these three factors and the disease will be mastered; as we cannot materially reduce the number of inspired pollen, we direct our efforts to the first two, — the neurosis and the nasal condition.

POISONING OF THE UNDERWOOD FAMILY BY WOOD ALCOHOL.¹

BY E. G. HOITT, M.D., MEDICAL EXAMINER, MARLBORO, MASS.

At 4.30 P.M., Feb. 13, 1899, while one of the worst blizzards of which our New England climate can boast was in progress, I received a summons by telephone, from one of our shoe manufacturers, that, in a little house in the rear of his factory a caller had discovered that four of its inmates lay dead on the floor, and others, three in number, were partially unconscious.

In company with the city marshal and one of his force, I went immediately to the place and found four dead bodies lying on mattresses on the floor. The bodies, partly dressed, were identified as those of Edward L. Underwood, head of family, aged forty-eight; his daughter, Frances, aged eight years; a daughter Olive, aged twenty-two years. Beside her lay her illegitimate child, John Clifford, aged two years. The bodies were lying in a natural position; the *rigor mortis* was well developed. All had appearance of having been dead several hours.

I found in an adjoining room, Mrs. Adelia Underwood, aged forty-four, wife of Edward, mother and grandmother of deceased children, her son Guy, aged eleven, and one Robert McMullen, not a member of the family but a frequent caller at the place. All seemed in a dazed condition.

Mrs. Underwood made the statement to me that she was afraid that other members of her family, in the adjoining room, were going to die. She afterwards admitted that she was aware they had been dead since early morning. When asked why she had not notified some one of the fact, she said "she did not know."

I asked Robert McMullen his name. He replied, "It was none of my business." When asked what he was doing there, said that was his business. I also inquired if he was aware there were dead bodies in the adjoining room. He replied, "What of it?" and "What are you going to do about it?"

When asked if he was acquainted with me, said, "No, and did not want to be."

Guy, the boy, stated that none in the house had previously been sick; that all retired the night before, upon the mattresses, in the following order: First, his father, next to him on his left was himself, on his left lay his mother, next Frances, then Olive, and by her side her baby.

He said that McMullen slept on a lounge in the adjoining room. He (Guy) said he awoke about midnight and all seemed to be asleep, the house was

warm, saw no smoke and detected no odor. Said his mother soon awoke and gave them all some tea to drink, but was not positive it was tea, that she also drank of the same, but not from the same cup. Said his mother gave him some tea the night before, which he vomited, and that he did not vomit prior to taking the tea. Said all of the family drank liquor, and that they gave it to the baby also. He said he awoke at 9 A.M., Feb. 13, and thought his father was dead, and so informed his mother, who made no reply, but went out of the room. He then told McMullen, who came in and looked at them, said he did not believe it. He also went out of the room.

He next learned that little Johnnie, Olive and Frances were dead, and so informed his mother, who attempted to give them some tea, but was too nervous to do so. Said Miss Lillian Clark called in the afternoon to see Olive, and his mother would not let her in, but told her that she had gone to work — said his mother told him to keep still and say nothing.

I ordered the dead bodies to be removed to the city morgue, McMullen to be taken in custody, and placed Mrs. Underwood and her boy Guy under the care of the city physician at police station.

I made an autopsy on Miss Olive, in presence of Drs. C. L. Cutler and P. J. Dervin. The body was clothed in chemisette, dress waist and pair of black stockings. There was partial *rigor mortis*, lips and tongue were pale, latter forced against teeth, pupils equally dilated, white froth was oozing from nose and mouth, abdomen large and distended, as though containing foreign body, thumbs flexed on palms of hands, fingers flexed on thumbs. There were no marks of violence on body. The brain was normal in appearance, left lung adherent to diaphragm, otherwise both lungs normal. Pericardium contained about one drachm of yellow serous fluid; heart normal in size and weight; anterior and posterior walls of stomach were congested, also upper part of small intestines. Stomach contained about eight ounces of fluid and some solid particles of undigested food — transverse colon markedly distended with gas and very much congested. Gall bladder contained half an ounce of bile. Liver, kidneys and bladder were normal. Uterus contained eight-pound female child, in eighth month of development.

I will here state that from good authority I learned that two years prior to this circumstance, she (Olive) gave birth to a full-term child, which was drowned in a pail of hot water, with her mother's assistance.

I then made autopsy on body of Edward L. Underwood, father of Olive, aged forty-eight years. Body was clothed in black vest, brown flannel outside shirt, light brown undershirt, dark pants, under drawers, one black stocking on left foot, none on right. There was partial *rigor mortis*, face pale, pupils equally dilated, lips and tongue livid. I found liberally distributed on body pediculi capitis, vestimenti and pubis. Penis was bandaged with white cotton rags, which contained gonorrheal discharge, with some oozing from meatus. Brain was normal in appearance, both lungs normal. Pericardium contained about two drachms of yellow serous fluid. Heart was abnormally large, right

¹Read before the Massachusetts Medico-Legal Society, Oct. 1, 1902.

auricle, right ventricle and left auricle distended with dark fluid blood, left ventricle empty. Otherwise heart appeared normal. Anterior wall of stomach and pyloric end of same, also small intestines, showed inflammation. Stomach contained about six ounces of fluid, no solid particles of food. Bladder distended and contained about one pint of urine. All other abdominal organs appeared normal.

Following this I made autopsy on body of Frances, aged eight years, daughter of Edward. Body was clothed in corset waist, white ribbed undervest and drawers and black stockings. There was dark fecal matter on nates, seat of drawers and back side of undershirt. Face was pale, eyelids partially open, pupils unequally dilated, lips and tongue livid. *Rigor mortis* was entirely absent. Both pleural cavities contained about four ounces of serous fluid; lungs were normal. Pericardium contained about one ounce of fluid; right auricle distended, right ventricle partially distended with dark fluid blood, left auricle empty, left ventricle fully distended. Heart was normal in size, weight and appearance. Stomach appeared normal, and contained about five ounces of fluid. Small intestines were slightly congested. Bladder contained about one ounce of urine. Liver was normal in size, weight and appearance. All other abdominal organs were normal.

Lastly I made autopsy on body of John Clifford Underwood, aged two years, illegitimate child of Olive, whose autopsy has been previously reported. Body was clothed in dark flannel dress, white undervest and drawers, cotton diaper, containing fecal matter and urine, chest protector, string of Job's tears beads on neck, no shoes nor stockings. Left cheek, nose and forehead were ecchymosed, pupils equally dilated, lips and tongue pale. Each pleural cavity contained about three ounces of amber colored fluid. All thoracic organs appeared normal. Stomach was distended with gas and slightly congested on anterior surface; contained about four ounces of liquid, no solid food. Gall bladder contained half a drachm of bile. All other abdominal organs appeared normal. Bladder was empty. After making autopsies on all the bodies I removed from each subject the stomach with contents, portions of intestines, liver and kidneys, and sent same under seal to Dr. Edward S. Wood for his examination.

He reported to me that his analyses of contents of all stomachs revealed wood alcohol in sufficient quantity to produce death.

Later on I learned that it was an established custom of this family to drink anything of an intoxicating nature, and that it was freely given to the younger children. A day or two before their death Miss Olive stole from the factory in which she was employed a quantity of wood alcohol.

Mrs. Underwood, the wife, mother and grandmother, was under the city physician's care for several weeks, in a critical condition, but made a good though slow recovery.

Last month she died at the poor house, from a complication of diseases unknown to the writer. Thus ended this branch of the Underwood family, aside from the boy Guy, now fourteen years of age, who gives promise of following in the footsteps of his degenerate family.

WOOD ALCOHOL POISONING.¹

BY S. W. ABBOTT, M.D., NEWTON, MASS.

SEVERAL months ago some deaths occurred in Beverly from alcohol poisoning, and as they appeared to be of an exceptional character, I wrote to the Board of Health of that city, asking for more definite information in regard to them. It appeared from the reply which was received that three men had drank freely from a bottle marked "*Colonial Spirits*," and all of them had died soon afterward. I then sent to one of the department stores in Boston and obtained an unbroken sample of the same article, submitting it to a chemist, who, after analyzing its contents, pronounced it to be "wood alcohol." The same article is now being sold under several different names. Deaths of this character appear to be on the increase, and some sort of legislation seems necessary to prevent their occurrence. The only measures which occur to me at present as practicable are the requirement that all retail packages of wood alcohol sold under any name shall be very distinctly marked or labeled as poisons, and also the requirement that such articles shall be deemed to be poisons, and shall be sold only by a registered pharmacist, and then only when a record of the sale has been made.

There is, however, a possible difficulty in obtaining such legislation in the interest of public safety, since the patent medicine trust has a well-organized lobby, always watchful against any interference which may be opposed to its financial interests. The grasping spirit of "*Commercialism versus the Public Health and Safety*" has defeated many a life-saving measure in recent years.

A word about alcohol poisoning in general. There seems to be a kind of popular sensitiveness in the matter of calling alcohol a poison. Whatever doubt exists relating to the question of the food value of alcohol, there can be little doubt in the minds of medical men as to its poisonous qualities. It is not necessary to shut a man up in a box and feed him on alcohol for a week in order to settle this phase of the question. We need only refer to the highest medical authorities upon poisons, and upon forensic medicine. Orfila, Christison, Taylor, Tardieu and Boehm all agree as to the poisonous qualities of alcohol both in the production of acute and chronic poisoning, and Caspar, Lehmann, Beck and Woodman and Tidy treat of the medico-legal side of the question. The excellent paper read before this society by Dr. Sabine of Brookline upon the same subject gives ample proof in the same line of inquiry.

A few years ago I had the curiosity to select from all the medical examiner returns for one year every case in which the medical examiner had reason to believe that the death was due either directly or indirectly to alcohol. The whole number was 235 out of a total of 1,651 from all causes returned by the medical examiners, or over 14% of the whole number returned, including homicides, suicides, accidents and deaths by other causes. Among these latter were many from acute alcoholic poisoning (see Registration Report for 1888, p. 399).

If wood alcohol were to come into very common

¹ Read before the Massachusetts Medico-Legal Society, Oct. 1, 1902.

use, and be sold as freely as ordinary groceries or other commodities, without any legal limitation, it is probable that such deaths as have been reported to-day would become of more common occurrence, and action would have to be taken for their prevention.

Medical Progress.

REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND R. SOUTTER, M.D.

ARTHRITIS DEFORMANS.

BECHER¹ writes of the early diagnosis of arthritis deformans coxæ. There is marked limitation of abduction on the diseased side before joint changes are present, with increased bony thickening about the trochanter, which seems higher. Treatment is plaster of Paris or celluloid fixation, with splint massage and gymnastics.

C. L. Dane² reports an autopsy of a case of rheumatoid arthritis (spondylosis rhizomelia) with no cord lesions but with degenerative changes of the linings of the hip joints. The patient was thirty-five years old, slightly alcoholic, and had had a brief attack of caisson disease with paraplegia seven years before. The present illness lasted one year and manifested itself in the knees and hips. Death was sudden.

Goldthwait³ states that the treatment of osteoarthritis is medical and mechanical. The medical treatment consist of general tonics, without anti-rheumatic drugs.

Mechanical treatment of osteo-arthritis of the spine will vary, according to the severity, from a corset with steels or a spring steel brace to a long plaster jacket; the latter should be used in cases requiring bed treatment, as bed alone is not sufficient to maintain the curves of the spine and good fixation. If there is much deformity, frequent jackets to correct a little at a time should be applied. Three to four weeks is usually enough to gain all that is possible. Jackets are worn three to four months, then a light brace. There is often immediate relief of pain with treatment, but this may take three days to several weeks if the disease is of long standing. There may be acute exacerbations, but never a genuine return of the disease when cure has occurred.

Koenig thinks osteo-arthritis coxæ, as observed in twenty-one cases, appears as a distinct disease. The etiology is not clear. Pathologically, it is pan-arthritis disease of the joints and capsules, beginning in the cartilage with swelling; the cartilage then becomes absorbed and leaves bared bone. There are cartilage and bony proliferations about the joint. The ball-and-socket hip joint is changed into a ginglymus. Motion becomes more and more limited. In the joint are found separated on fused bits of cartilage the so-called arthritis deformans joint mice. The pronounced form of the disease is more common in persons of about forty. In typical cases, it does not follow other diseases.

¹ Berl. Klin. Woch., 1901, No. 47.

² Tr. Amer. Phys., Phil. 1901, xvi, 427-430.

³ Osteo-arthritis of Knee, B. M. & S. J., 1902, cxlvi.

Among laborers the course is typical. The joints are more painful after rest. Hoffa says that limited abduction is characteristic. When the disease is established, it remains without change, becoming neither better nor worse. Total stiffness of the hips results.

In young people total loss of motion usually occurs within one year, but very few early treated cases become totally stiff. Koenig has never seen a cure in arthritis deformans coxæ. Extension gives some relief; regular, passive motion, sparingly used, is useful in treatment. A surgical operation may be of benefit. Resection of diseased bone relieves the stiffness and the pain arising from new bone formation, and the patient may then be able to work. Apparatus cannot be used to much advantage. After operation the ability to walk without pain has always been accomplished.

Mayet⁴ discusses the history of spondylose rhizourélique. After tracing the various theories he lays much stress on those of Teissier and Roche, who believe it is analogous to certain diseases of the nervous system. The atrophy, nutritive disturbance, dry skin, symmetry of distribution, regular progression, insidiousness, the scleroderma, porosity of the bone, vasomotor edema, the alteration in the sensation of contact, pain, heat, cold, etc., the girdle sensation, seem to be of nervous origin.

There are three classes:

(1) Chronic deforming rheumatism, that is, trophoneurosis.

(2) Chronic rheumatism following acute rheumatism.

(3) Chronic gouty rheumatism of articular origin.

In autopsy of cases areas of spinal meningitis were found, and at times the spinal roots were affected. Disease of the dura was found in another case. Klippel found disease of the anterior horn.

The spine becomes ankylosed. Many men have demonstrated specific organisms, but none have been proven beyond doubt. The etiology is unknown, lowering of vitality seems to be important, as do dampness and cold. It is apt to occur in poorly nourished persons.

These conclusions are reached: Ankylosis is of the vertebræ; the vertebral column is always affected in the disease; there is no deformity of smaller joints; men are affected oftener than women; it is a disease of early adult life; it is noticed first in the hips and sacrum.

Painter⁵ describes the pathological lesions of rheumatoid arthritis with microscopic slides and x-ray illustrations.

The disease is distinctly polyarticular, affecting the young and middle aged, usually women. Locally there are spindle-shaped swelling of the joints, synovial distension, no bony enlargement, atrophy of the soft parts and articular cartilages and often erosions. Rheumatoid arthritis is constantly confused with osteo-arthritis.

In rheumatoid arthritis the phalangeal articulations are most commonly attacked. Later the large joints are affected.

In osteo-arthritis the spine is affected early: there is less atrophy than in the rheumatoid variety;

⁴ Gaz. des Hôp. de Paris, 1902, lxxv, 689.

⁵ Trans. Amer. Orthoped. Ass'n, 1902.

there is no synovial swelling, moreover the enlargements are bony, caused by bony overgrowth (not cartilage degeneration as in rheumatoid arthritis).

In rheumatoid arthritis the most manifest lesions are joint changes, increase of synovial fluid, membrane and cartilage alterations, changes in the peripheral and central nervous system, in muscles, viscera, blood vessels and lymph glands. The two types of arthritis deformans are almost never seen in the same person. Rheumatoid arthritis is not inflammatory.

It is suggested that the changes in rheumatoid arthritis are due to fatty metabolism.

According to Baton,⁶ surgical treatment of osteoarthritis is rarely called for, the treatment is generally medical, bathing with local applications. A cure is not expected. Generally there is little or no effusion, but sometimes this is present and requires surgical treatment. The fluid is more serous, that is, less oily, than in ordinary synovitis, and this may be the cause in part of the creaking and stiffness. Operated cases in this disease should not be kept at rest long. Effusion into bursæ, often remote from the affected joint, sometimes requires treatment. They must be incised, drained, curetted, washed with carbolic acid and sutured. A small drain is left. Loose bodies are frequently found in the joints.

T. J. Roynton⁷ experimented with a diplococcus taken from the joint of a man suffering with osteoarthritis. The man died from acute carbolic acid poisoning. Several joints were affected. By intravenous injection of the diplococcus into rabbits, the disease was reproduced, without cardiac lesions, and the diplococcus recovered from the animals.

After various experiments, he concluded that this diplococcus is the cause of rheumatoid arthritis, and differs from the rheumatic fever diplococcus.

C. G. Stockton⁸ showed a skeleton of the spinal form of arthritis deformans. The patient died at forty-four, after being in hospital fifteen years. During the last three years all the joints were stiff. There was at death very slight motion in a few of the joints in which there had been none in life, but all the joints were ankylosed. The tendon grooves were deeply marked.

LATERAL CURVATURE.

Deviations in the vertebral column in the schools at Lausanne-Combe.⁹

It has been generally believed that school work is largely influential in the causation of lateral curvature. The admirable report by the physician of the school of Lausanne and his two associates demonstrates this beyond the possibility of reasonable doubt. Statistics show, according to the report that in countries where obligatory instruction exists, the percentage of deviated spines increases greatly, while in non-civilized races scoliosis is very exceptional.

In examining abnormal curves it is necessary to determine the normal attitude, and on examination it was found that this is not the so-called military

position, but one in which in profile the vertical line passes through the vertex, touching the ear just behind the angle of the maxilla, crossing the body in the bicotyloid plane, passing behind the patella in front of the tibia, falling on the foot at the Chopart's articulation.

The abnormal positions besides scoliosis are, (1) kpyhosis, round shoulders; (2) lordosis, hollow back; (3) kypholordosis, a combination of 1 and 2; (4) flattened back, when the shoulders and pelvis are flat, but the lower dorsal region is curved forward.

The latter deformity is apparently not rare, as it is found in 17% of the children. It does not increase during school life; it affects girls more frequently than boys, and country more than town girls. The relation of this to the development of scoliosis is less important than has been supposed. Ten per cent of the flat backs have scoliosis, and children with this deformity need watching, as they are somewhat more disposed to scoliosis than other children.

The report covers the examination of 2,314 children, and antero-posterior curvatures were found in 5.8% of the cases, boys being a fraction of a per cent more frequently affected. The curves increase the longer the children are exposed to school life; 2.7% in the lower class and 4% in the upper class. Of these, 9% showed evidence of rickets and 90% were without rickets. In half the cases the curvature were combined with scoliosis.

In scoliosis, the influence of a difference in the length of the limb was not found as important a predisposing cause as has been asserted. Of 571 scoliotics, 6.8% had shortened limbs. The influence of flat foot is shown to be slight in the development of scoliosis, by the fact that this defect found on one side in 28.9% of the boys (1,290 cases) was found in only 8.4% of the scoliotics.

Scoliosis, according to Eulenburg's figures, increases in frequency in the age of school life to an alarming degree; 8.9% being between the age of two and six; 88.6% from six to fourteen, the age of entrance into scoliosis examined by Eulenburg being six. In adults there is not a progressive increase in percentage of scoliotics.

In the schools at Lausanne, 24.6% were found scoliotic out of 2,314 children examined. Boys, contrary to the ordinary opinion, were affected nearly as much as girls; boys 23%, girls 26.7%. Left scoliosis increased less frequency than right as the children grew. Lumbar scoliosis is much more common in girls than in boys, but dorsal scoliosis is nearly as common among boys as among girls; while total scoliosis is more common among boys, marked scoliosis is more common among girls than boys.

The anemic condition appears to exercise a predisposing influence, though not a determining one, on scoliosis. Muscular development does not appear to present a certain obstacle to the development of vertebral curvatures, nor muscular weakness a certain cause. Growth exerts an important but not the principal predisposing cause in vertebral curves. Rachitis also is a cause of great importance, but not the only cause, as 65% of the cases with rickets show no evidence of vertebral curves.

⁶ Surgical aspect of osteo-arthritis of the joints. Edinburgh M. J., 1902, N. S., xi - 248.

⁷ Med. Press and Circ. London, 1903, N. S., lxxiii, 82.

⁸ Tr. Ass. Amer. Phys., 1901, xvi, 691-94.

⁹ Annal. de Méd. & Chir. Infant., Vol. v, 1901, p. 335.

SCOLIOSIS.

Schulthess¹⁰ combats Lovett's article in the Transactions of American Orthopedic Association, 1900, and does not agree that side backward bending to the affected side can be successfully relied upon as a curative measure in scoliosis.

CONGENITAL SCOLIOSIS.

Broca and Mouchet¹¹, reviewing the literature and their personal experience, have collected thirty-five cases. Of these a certain number presented the deformity in connection with some other defect, — imperforate anus, absence of radius and exencephalus. Certain cases exist where the congenital deformity is entirely in the spine. The cause of this is not known, and the writers are inclined to consider the cases as due to an unknown anomaly of vertebral ossification. In a few cases examined by the x-ray, a left hemiatrophy of the twelfth dorsal vertebra, with absence of the left twelfth rib, has been observed.

The treatment consists, according to the writer, in plaster corset correction under an anesthetic, followed by massage and gymnastics.

CONGENITAL DISLOCATION OF THE HIP.

Cathala and Veau¹² report an anatomical examination of a case of congenital dislocation of the hip in a child of four, treated by the method of Lorenz, where death took place from diphtheria one month after reduction. The pectineous was almost completely torn. The capsule did not present an hour-glass contraction preventing passage of the head. The capsule was unusually thick in front, but was thin behind. The cotyloid cavity was well shaped, with well-marked borders. The round ligament was present. The femoral head was small. There was a cartilaginous prolongation on the neck on its posterior surface, not present on its anterior.

Experimenting with methods of manipulation on this specimen, it was found that the upper part of the acetabular edge, which separates the two cavities, the true and the false, presents the chief obstacle, by its prominence, to reduction by direct traction. In order to make the reduction, it is necessary to flex the femur in the pelvis and make a slight external rotation. The head is to be brought down to the posterior part of the acetabulum where the edge is less prominent; the thigh should be then abducted and the head will slip into the acetabulum.

The advantage of the position of the limb in forced abduction to ninety degrees, with external rotation over a position of extension with internal rotation, is that the head is pressed against the upper border of the acetabulum better than if the limb is in an extended position. In an externally rotated position with extension, the head is held closer to the acetabulum by the tension of the capsule, than in the position of internal rotation which relaxes the anterior part of the capsule. The position of flexion and internal rotation fixes the head poorly in the acetabulum, and this is also true of abduction with internal rotation.

All movement which presses the head upward and forward helps in maintaining the reposition,

whereas a pressure which tends to crowd the head against the posterior inferior part of the joint, the weakest portion of the joint, does not help to secure the head in the acetabulum.

Josserand¹³ reports fifty cases of reduction of congenital dislocation of the hip by the method of Lorenz. The death and autopsy of a child four months after the operation and after treatment demonstrates anatomically the success of reduction by this method. Of the 50 cases, one died of diphtheria, one was removed before the completion of the treatment.

In the 48 others, 27 luxations were unilateral and 21 bilateral, that is, 69 articulations subjected to treatment. The results were 25 reductions, 37 transpositions, 2 fractures, 8 relapses, 2 cases where the head could not be moved. Of the 27 unilateral reductions, 12 were reduced, that is, 44%. Of the 42 bilateral, 13 were reduced, or 30%.

Forty-two cases were younger than five. Sixteen unilateral with 9 reductions, 56%. Twenty-six bilateral with 10 reductions, 38%.

Twenty-seven cases were older than five. Eleven were unilateral with 3 reductions, 27%; 16 were bilateral with 3 reductions, 18%.

The articulation presented in all cases certain anomalies: prominence of the head after reduction, a slight lengthening of the limb after the operation, one-half to one centimeter, and in one instance a shortening.

Of the successful cases 25 walked without a limp. Eleven unilateral, 9 reductions and 2 transpositions. Fourteen bilateral, 6 reductions and 6 transpositions. All but one were under one year of age.

The author considers operation advisable in children under five, but not over ten.

Ochsner¹⁴ reports an autopsy on a successful case, one year after successful reduction by the Lorenz method, in a child of four, with double dislocation.

Interesting articles are presented by Joachims-thal.¹⁵

PROPER FOOT WEAR — THE TREATMENT OF WEAKENED AND FLAT FEET.

Sampson¹⁶ in an excellent article points out the defects of the ordinary shoe, and emphasizes the necessity of a boot which gives plenty of room in the front of the shoe, preventing crowding of the toes, and at the same time grasps the heel of the foot firmly. He advises in a weakened foot the use of a toe post, cut out of tin, which is slipped into a slit in an inner sole of cardboard which exactly fits the inside of the boot. The toe post prevents hallux valgus, and adducting the toe prevents abduction of the front of the foot. In flat feet a plate is necessary.

FLAT FOOT IN NEGROES.

Muskat¹⁷ examined the feet of a troop of Tongo negroes, and finds that the popular idea of the flatness of the negro foot is incorrect. In this he agrees with Hartmann and Herz.

¹⁰ Annal. de Méd. & Chir. Infant., 1901, 773.

¹¹ Annals of Surgery, August, 1902, p. 198.

¹² Berlin. Klin. Woch., 1902, pp. 848, 875; and by Brun, Presse Médicale, 1902, p. 221.

¹³ Johns Hopkins Hospital Bulletin, p. 8, vol. xiii.

¹⁴ Deutsche Med. Woch., 1902, June 28, 471.

¹⁵ Zeit. f. Orthop. Chir., x Band, 3 Heft., 1902, p. 455.

¹⁶ Gaz. Hebdom. de Méd. & Chir., 1902, p. 529.

¹⁷ Soc. Anatom., Octobre, 1901, p. 540.

DEFORMED CHINESE FEET.

Perthes¹⁸, in an interesting radiographic study of a Chinese lady's foot, considers this acquired deformity an excellent demonstration of what change can be effected upon normal growing bone by long-continued pressure.

Reports of Societies.

MEETING OF THE MASSACHUSETTS MEDICOLEGAL SOCIETY, OCT. 1, 1902.

FRED. E. JONES, M.D., QUINCY, MASS., SECRETARY.

DISCUSSION OF POISONING BY WOOD ALCOHOL.

DR. S. W. ABBOTT: The people that die from such causes are most all tipplers. There are not many people who drink intoxicating liquors, except those who will take pure alcohol, unless they are the pretty decided tipping class.

Now, wood alcohol, a bottle of which I hold in my hand, has been purified to take the color out, and in all appearances it is the same as pure alcohol. It is not to be taken internally, and is marked on the bottle, "Must not be taken internally," but a great many people cannot read and write, and this is the class that drink it. It should have a good, big red label, marked in large letters, as all poisons, and the red label has come to be the label pretty well marked for poisons. Dr. Draper has enumerated a list of twenty or thirty poisons, but wood alcohol is not among them.

DR. A. E. PAINE: Has not wood alcohol the odor of creosote?

DR. S. W. ABBOTT: It is more pungent than creosote, and does not resemble it.

DR. S. D. PRESBREY: I am happy to say that my experience is extremely limited. I do not know that I ever saw a case of illness, or a case of death, from the use of wood alcohol. If I have, it has gone by me without my appreciating it. I have heard of tipplers using wood alcohol, but, as has just been said, they are those who are so thoroughly addicted to stimulation that almost anything would do that was a stimulant, and almost anything is "fish for their net" if it is alcohol.

I have heard that some of the large manufacturing concerns in Taunton, where the hoisting jacks are used, with wood alcohol instead of water, to raise large bodies, have had great trouble by the men tapping the pump and taking out the alcohol. Some had to substitute something else, so that it could not be considered palatable. But those who are so fond of intoxicants often care less about the palatableness than the stimulation. My experience as a medical examiner is purely nothing. I have learned to-day more than I have ever known.

DR. S. W. ABBOTT: It seems to me that there is something in the specific nature of wood alcohol that is more poisonous than the degree of poison,—something more specific than the degree of poison. It seems to me that the sweeping character of these deaths in Dr. Hoitt's paper, and the three in Beverly who were all killed by it, would indicate this.

DR. A. E. PAINE: Would like to ask Dr. Hoitt,

if, in making the autopsy, he did not discover the odor of wood alcohol?

DR. E. G. HOITT: I would say that on the first autopsy that I made, I detected the odor but of course that was not positive as a cause of death; so far as I could see this was the cause, and so I sent the parts to Dr. Wood with a report of the case, and he had every reason to believe that wood alcohol caused the deaths. The conditions of the stomach, I would say to Dr. Presbrey, were normal. In the stomach, where they have been on a long tippy, you would see a slight congestion of the cells. The confirmed drunkard will drink anything. This family was educated to it, even to the baby, two years old. They gave it to him every time that they took it. In this particular case, they had been drinking freely, as there had been a lull in the shops. They ran out of money, and finished up on wood alcohol, as they could not get anything from any one. I do not know how much they drank, or how much was stolen; she got it once in a pitcher and once in a bottle. I found a five-pint bottle that had contained wood alcohol, and that was also sent to Dr. Wood. I had no knowledge of how much each drank, or which one died first.

I thought that it was an interesting case.

DR. A. E. PAINE: I was with Dr. Holmes just after the making of wood alcohol started in an adjoining town. Two fellows, working in one of the shoe factories, took one or two quarts home into the town of Avon, or East Stoneham. They died within twenty-four hours. Dr. Holmes made the autopsy; the odor was very perceptible through the abdomen and in the urine, and there was a congested condition of the stomach.

The man who ran this wood alcohol place, who is now connected with a large establishment in Buffalo, had suffered from cystitis; he was very sick; he said (this was after these men died) he thought that it was the result of the wood alcohol. He tells me since that it is a common occurrence for the men working over it, or working at it long, to have an attack of cystitis.

DR. B. H. HARTWELL: I am very glad that we have this article to examine, and also that the matter has come before the society. The increasing use of wood alcohol leads us to think that we may have our attention called to it more than in the past.

I called on one of the large furniture finish places and inquired as to the use of wood alcohol in the arts, and I was told that they are using it very much more than in the past. The common alcohol sells for \$2.75, and the wood alcohol for only 75 cents per gallon. It smells and is sweet, the same as common grain alcohol. . . .

There was an instance of poisoning from shellac in the Foxboro Hospital, as under these conditions wood alcohol is used in shellac, and it will do just as well as the grain alcohol. The superintendent had it under lock and key. The patients in using this shellac, as the trustees were having some painting done, were told of its poisonous character by the superintendent, but they thought that he told them that to keep them from drinking it. You know, workers in shellac precipitate it by pouring water into a tumbler with some shellac, thus making a gum, and then drinking the water. Knowing this habit of shellac workers, he told them

¹⁸ Archiv f. Klin. Chir., vol. lxxvii, p. 620.

of its poisonous character; nevertheless, they took it, and two died. That fact was new to me, that shellac workers or finishers knew of this way of getting drink at the expense of the owner of the shellac, by diluting it with water.

DR. A. W. BUCK: I had a case last March of a man forty-four years old, (I have the notes here in my pocket). He was not working for two weeks, and was in the habit of drinking. On Sunday (this was on a Monday), he drank from an eight ounce-bottle full of liquid, and drank the entire contents, in small portions through the day, thought to be methyl alcohol, which had a red label on the bottle marked "poison." The son had bought some furniture of a mechanic, and had this bottle full of wood alcohol, to use on it, hid in the closet. The man gave his wife some of the alcohol, saying that it was good liquor, but she refused to drink it, saying that it was not good. His son George called his attention to the red label marked "poison," and he said that the labels were simply a bluff. I do not know how long after he drank before he died, but this man drank all day Sunday in small quantities through the day. Monday morning, when he awoke, he complained of not feeling well, but did not care to have the physician called then; he felt as if he were going blind, the son said he complained of blindness, and he walked about feeling his way, all morning; he lay down about twelve o'clock, and spoke at that time, and then died about one o'clock. There was no autopsy; the man drank from a bottle which had a red label, which goes to show that although even with the red label it does not seem to protect the public if they care to poison themselves.

I knew of a case like the case at Foxboro, — poisoning by shellac. The results were almost identical with this case reported to-day. As I understand it, the shellac gives up the wood alcohol in it.

DR. MEAD: Simply to swell the list I will mention two cases, painters. They drank about a quart of wood alcohol, as near as I could learn in questioning about the cause of death; there was no autopsy. This happened about five years ago in the city of Newton.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

STATED meeting, Dec. 8, 1902; the president, ANDREW H. SMITH, M.D., in the chair.

DR. OLIVER T. OSBORNE, professor of materia medica and therapeutics in Yale University, read by invitation a paper on

THE SIGNIFICANCE OF VARIATIONS IN THE INTERNAL SECRETIONS.

It was his purpose, he said, to state briefly what we really know of the most important secretions and what we are perhaps justified in surmising. The conditions which have been proved to be caused by disturbances of an internal secretion are, acromegaly, cretinism, myxedema, Addison's disease and about half the cases of diabetes. The conditions that he would like to see proved as due to some disturbed internal secretion were, hysteria, neurasthenia, possibly melancholia in its first stages, hemophilia, rickets, atheroma, sclerosis, gout, leu-

kemia, chlorosis, shock, what we call a neurotic condition, and all cases of diabetes. He purposed to leave out of consideration the various digestive juices, and consider only those of the most important ductless glands.

The action of the thyroid and suprarenals might be taken up together, as in many ways they were diametrically opposed. The thyroid is perhaps the main organ of the body to furnish vaso-dilating stuff, while the suprarenal glands are without doubt the main organs to furnish vasoconstricting stuff. Hypersecretion of the thyroid, or the feeding of thyroid substance, will always dilate the peripheral blood vessels and reduce arterial tension; on the other hand, the blood pressure raising power of suprarenal extract is without equal in physiology or therapy. Many physiologists believe that the vaso-motor center in the medulla is sufficient to explain the normal heat production and heat loss. We do not know what part these two glands play in this alternating opening and shutting of the blood vessels, but the babe has but an imperfectly developed thyroid, while its adrenals have been observed to contain no vaso-contracting stuff, and we find that the babe's temperature varies with that of its surroundings, it having no heat governor or regulator. The thyroid gland seems to be the one that has the most to do with the health of the skin, and if this gland becomes atrophied or enlarged by connective tissue elements displacing its parenchyma, the skin becomes harsh and dry. If the condition is sufficiently aggravated, mucin appears in the tissues, and the condition of mucus or myxedema is present. Normally the thyroid gland begins to atrophy from forty-five to fifty years of age, and the advent of old age allows, sooner or later, the skin to become dry, harsh and rough, and perhaps to shrivel or wrinkle. In this condition of the skin in the old, and where there have been scaly eczemas due to dryness of the skin, he has found thyroid to be one of the best treatments. Diminished thyroid secretion allows the blood tension to become higher; hence the old adage that we are always and only as old as our arteries seems proved to be true. Diminished secretion of the thyroid tends to allow (he would not say cause) an endarteritis, which later may lead to true atheroma. Perhaps the reason that syphilitics have such a tendency to sclerosis is that mercury long given may interfere with the secretion of the thyroid, and he believes that the large class of so-called alterative drugs have such so-called alterative action because they act upon one or more of the ductless glands, modifying their secretion. It was his opinion that under-action of the thyroid allows connective tissue growth in many organs (in other words, it allows sclerosis), and that the feeding of thyroid in small doses is one of our best treatments to prevent the advance or, at least, to slow up this connective tissue formation. In cases of arterio-sclerosis, also, where nitroglycerin is of value in reducing the disturbances from high tension, he has found thyroid of marked benefit; while the iodides, which have been so much used for these conditions have been proved to be stimulant to the thyroid secretion.

Taking up the opposite condition, namely, that of shock, we find that here, whatever may be the cause of the disturbance, there is always the same

underlying pathology,—very low blood pressure and dilated or even paralyzed vessels. At the same time the body loses the heat so necessary to life, in consequence of the dilatation of the peripheral vessels. Whether severe pain has caused an enormous secretion of the thyroid, or what is more probable, temporarily paralyzed the adrenals, or both, we do not know. When shock follows laparotomy, whether from splanchnic plexus injury or from the necessary manipulations disturbing the adrenal glands, the most important indication is for something that will contract the blood vessels, and this condition, he believes, may be most satisfactorily met by suprarenal or adrenalin chloride, or suprarenal solutions. As the action in raising the blood pressure lasts less than a minute, in treating shock it will probably be found best to inject a solution drop by drop into a vein, timing the rapidity by the behavior of the pulse. Any of the preparations of suprarenal may be given on the tongue for absorption there, but, unfortunately, it has been proved that when taken into the stomach the blood pressure raising power of suprarenal is absolutely lost. Suprarenal is also a strong cardiac stimulant, as well as a vasomotor contractor. Reichert has recently shown that in profound morphinic narcosis the adrenal secretion is stopped. This explains some of the symptoms of the last stage of opium poisoning, showing the danger from loss of heat in these cases, and suggests suprarenal treatment.

The thyroid secretion is a marked cerebral stimulant, while if it is greatly exaggerated we have headache and brain irritability, and we can even feed it to the point of causing convulsions. In morbid conditions he has occasionally awakened the mental faculties by thyroid. In the vasomotor ataxia of neurasthenia it would seem as if the suprarenal glands might not be doing their work. The thyroid may throw some light on the intangible cause of hysteria. In women it is known that this gland normally hypersecretates with each menstrual period. Again, 80% of all cases of exophthalmic goitre, or Graves' thyroid disease, occur in women. He believes this affection to be due to a hypersecretion of the thyroid, for the reason that its symptoms are exactly those caused by the over-feeding of thyroid. On the other hand, 80% of all cases of myxedema also occur in women, and this is well known to be due to under-secretion of the thyroid. Graves' disease occurs mostly between twenty and forty, or during the most active period of thyroid life; while myxedema almost invariably occurs from forty-five to fifty-five, when the thyroid normally begins to atrophy. Between these opposite points of profound hypersecretion and practical absence of secretion are all gradations of increased or diminished secretion, and many of the troublesome, unaccountable, intangible symptoms in women are due to this variation in thyroid secretion. At the time of the menopause if this gland continues to secrete more than is needed for the organism, we have the hot flashes, the full-headedness, the palpitation, and the nervous phenomena so well known at this period of life. Again, he has found that in delayed menstruation, with or without anemia, no drug is so efficient in causing normal menstruation as thyroid extract, given in three grain doses three times a day. He has also frequently found, in feed-

ing thyroid for other purposes, that menorrhagia was caused.

Having referred to cretinism, he went on to say that the thyroid gland in some way regulates the elimination of nitrogen in the urine. We can feed thyroid to patients whether they are obese or not, and increase the nitrogenous output. On the other hand, the time when the thyroid begins normally to diminish its secretion is the time when men and women begin to add weight. Whether the suprarenals have anything to do with the loss of red blood corpuscles in Addison's disease is not known, but the patient apparently dies of what might be considered an ultimate vasomotor paralysis. It has been lately shown by Herter that these glands have something to do with the production of glycogen. We undoubtedly do have many cases of diabetes mellitus without any pancreatic or nervous disease. In such a case he found that under the action of suprarenal substance given by the mouth the output of glucose was diminished, the diacetic acid disappeared and the acetone and ammonia were greatly diminished. He has long suspected that the suprarenals have something to do with gout, and in cases with gouty joints, high tension blood vessels, and gouty asthmatic attacks he has found that small doses of thyroid (the opposite of suprarenal) are of considerable immediate benefit, as well as tending to cause all kinds of gouty attacks to become very much less frequent. This may be partially due to the action of thyroid on nitrogen elimination.

The pituitary secretion is probably always exaggerated in the condition of giantism, and is certainly always diseased in acromegaly. It is probable also that in every patient affected with giantism who lives long enough, the case will assume the acromegalic type; giantism being nearly homogenous overgrowth of bone, while acromegaly is irregular bone growth. In several cases of acromegaly he has found the severe headache relieved by feeding pituitary. The glands of the body appear to be more or less interchangeable in their functions. In acromegaly some of the early symptoms are due to too much action of the thyroid, but later in the disease the thyroid secretion is diminished. In these cases the autopsy shows the thyroid to be atrophied, at least as to its parenchymatous portion, and a large number of the typical signs of acromegaly are due to this pseudo-myxedema. Pituitary substance stimulates the heart and contracts the blood vessels, but is greatly inferior to suprarenal in this respect.

The thymus gland, which atrophies in childhood and disappears after puberty, contains the largest amount of nuclein, and hence of phosphorus, of any gland of the body, and will serve the purpose of any nuclein treatment. Inductively it would seem that this gland, which is so active during the period of greatest bone growth, must have something to do with the formation of bone salts. As these earthy salts are all necessary permanently to encapsulate or to heal tuberculous lung lesions, Dr. Osborne thought that theoretically thymus should be of value, and practically he has found that in tubercular cases it is an aid to whatever hygienic or medicinal treatment is instituted. Many cases of exophthalmic goitre improve under its use, but he has never found any treatment that would positively stop hyper-

secreting glands except morphine or codeine. Thymus extract has shown some coagulant action on blood, and as this gland has been found absent in hemophilia, it should be tried in that affection. It would also seem, theoretically, of value in rickets and perhaps in the scurvy of children. We are so much at sea in regard to the physiology of the internal secretions of the pancreas, spleen, testicles, ovaries, mammary gland and parotid, that no safe indications for their use can as yet be made out, and whatever is done in a therapeutic way is purely empirical. Of course, any gland, like the testicle, which contains nuclein will give tonic phosphorus to the system.

In speaking of the study of the blood he referred to a case of lymphatic leukemia, which has been under observation for a year and a half. The patient is a man sixty-four years of age, who has all the glands of his body enlarged. Over 98% of the white blood cells are lymphocytes, only a little over 1% being polymorphonuclear leucocytes, while normally about 75% of white cells should be of the polymorph variety. In the laboratory one mooted point was settled, namely, that these white cells do not break down. Another interesting point was that any treatment which greatly reduced the size of his glands always made his white blood count greater and his red blood count less. This was true of sodium bicarbonate, and notably so of arsenic. Nucleic acid did not cause any increased number of polymorphonuclear cells. If fed in large amount it did cause a diminished white blood count, but also diminished the red blood count. His red blood count always improved under red bone marrow, and as regularly declined under any other treatment. In this case, then, there is undoubtedly disease of the red bone marrow; also it is pretty good physiological proof that the red bone marrow produces red blood corpuscles, and also good proof that the feeding of red bone marrow supplies that deficiency. Physiologists are about equally divided as to whether the lymphocytes are the origin of the polymorphonuclear leucocytes, or whether the latter grow from the bone marrow. This case having practically no cells of this variety, and the red bone marrow showing such evidence of disease, it would seem pretty good physiological proof that these polymorphonuclear leucocytes are formed in the red bone marrow.

DISCUSSION.

DR. WILLIAM H. THOMSON said that as the subject was such a large one he would confine himself entirely to one of the well-known diseases apparently connected with a ductless gland, namely, Graves' disease. His own impression, however, was that this affection is not due to disordered secretion of the thyroid. This gland, he believed, was involved only secondarily, as the spleen was in ague. As to the diagnosis between ordinary or parenchymatous goitre and exophthalmic goitre, while both diseases begin with enlargement of the thyroid gland, they have nothing else in common. Graves' disease is entirely distinct from a parenchymatous goitre. Anatomically, at least as far as we can recognize, they do not differ, but clinically they are absolutely different. Dr. Thomson stated that from a careful study of Graves' disease, he had made out

twenty-four characteristics, none of which were met with in parenchymatous goitre. Among these were persistent and extreme tachycardia, muscular tremors, local paralysis, headache (particularly of the form of migraine), special affections of the senses (as deafness, tinnitus aurium, etc.), severe intestinal derangement (especially diarrhea) and insomnia. In the cases he had collected he had been careful to exclude all hospital cases, as this was the most chronic of all diseases, and it was only in private practice that patients could be successfully followed up. In twenty-eight out of over forty cases of which he had complete records, all of the symptoms he had enumerated were met with. The cases without goitre were on the whole the most severe, and where this was present, the constitutional symptoms bore no relation whatever to the size of the goitre.

As to the pathology of the disease, it appeared to him that for this we must look to toxins in the gastro-intestinal tract. Thus, he had known the tachycardia to be reduced by from 20 to 50 beats by a single dose of a mercurial. In any case where there is persistent tachycardia not related to any inflammatory condition of the heart, the probability is that it is one of Graves' disease. The thyroid gland is involved in only about one-half the cases. His own view was that one of the functions of the thyroid was to neutralize the poisonous materials generated in the gastro-intestinal tract, and that when these materials were in excess a hypertrophy of the gland was liable to occur. This hypertrophy, however, was not an essential characteristic.

DR. E. D. FISHER said that the animal extracts seemed to him to act in one way or another as stimulants. Thus, nuclein was useful in senile enfeeblement. In backward children (not those who were the subjects of cretinism, but who were poorly developed), he had seen good results from the use of potassium iodide and thyroid extract. In weakly children of from two to three years, the thyroid seemed to supply something which was lacking in the system. Its administration need not exclude the use of cod liver oil or other agents which might be indicated. As to thyroid in the treatment of melancholia, he had found that in a hospital where this was tried, while sometimes there might be an evanescent improvement, the final results were entirely unsatisfactory. There was no pathology to this disease; it was simply a mental condition. In myxedema and cretinism we know the results. There was a form of arterial disease, not dependent on well-recognized pathological conditions, such as syphilis, Bright's disease, etc., in which anatomical changes are sometimes met with in the comparatively young. There were some changes going on (yet not endarteritis); some nutritional disease was present which made the man older than his years. In such cases we had the early breakdowns; neurasthenia or an apoplectic seizure might occur. It was in instances of this kind that he hoped that thyroid or some other extract might prove successful in arresting the nutritional change. As to pituitary in acromegaly, he could not say that this extract always gave results.

DR. J. LEONARD CORNING said that the thymus seemed to play a part in the elaboration of the bone salts, as was suggested by a comparison of the salts found in the gland with those so freely dis-

tributed in the bones. The large percentage of those related to organic compounds found in the thymus tends to heighten the probability of this gland's agency in the preparation of the so-called bone earth. Again, the fatty degeneration and atrophy of the gland as puberty draws near, at a time when growth has already proceeded apace and the sway of the balance heretofore so largely in favor of integration is no longer necessary, tend still further to support the theory. With regard to disturbance of the thyroid as a possible source of hysterical and other neurotic derangements, he supposed that most had seen functional cases recalling in some of their features, at least, the phenomena of exophthalmic goitre, cases which had gone on to improvement, more or less, under the exhibition of thyroid extract. But while this was true, there were others, differing apparently little, if at all, from these, which showed no such improvement. Both classes of cases were, to his mind, significant; the first showing a distinct relation of cause and effect, and the second pointing rather to a defect of nosology than of theory. Then we had to consider the possible consequences of over-activity of the organ, a condition to combat which we might probably have to look principally to the opiates. The crucial observation of Brown-Séquard, in 1856, that ablation of the suprarenal glands in guinea pigs and frogs is followed by lowering of the blood pressure and body temperature, progressive paralysis and ultimately death, affords ample demonstration of the physiological significance of the gland. Add to this his further observation that animals so treated might, by subcutaneous injections of extracts of the healthy gland, be restored to a relatively normal condition, and we have a very forcible suggestion as to the future therapeutics of the adrenal derivatives. With the improved chemistry of the drug, it has found favor with some in the management of cardiac weakness, hay fever, edema of the lungs, and even diabetes insipidus, not to mention hemorrhage, especially of gastric and pulmonary origin. Its hemostatic power is, indeed, one of its most significant and promising features. A still more extended application of the gland in the management of conditions more or less largely due to circulatory inefficiency is likely to follow, in view of its remarkable physiological importance, as shown by experiment. Let us hope that the veil which has so long shrouded the more intimate chemistry of the cell is about to be lifted, at least part way; that with this revelation of the more illusive phases of normal cell metabolism will come a complementary appreciation of the pathological chemistry of cell-life, and, in fine, that this double estimate (this comparison of the tissue chemistry of health with that of disease) may result in a more effective management of many baffling conditions. Certainly the suggestions brought forward in Dr. Osborn's paper are rationally inspired, and should help on to fruitful consequences.

DR. R. W. WILCOX said that when ablation of the thyroid is practised, death from shock may ensue. The reason for this Dr. Osborn has explained. Patients who have had it ablated, and are fed on thyroid, suffer from what may be called continued shock. Thyroid is a potent remedy, and when it is given its effects should be watched with the greatest

care, as grave symptoms are liable to arise. The same is true of suprarenal extract. Not excepting the barium salts, suprarenal is the most powerful vaso-constrictor which we possess. Its first and principal action is on the arteries. Secondly it acts as a cardiac stimulant, but this effect is not produced until some time after it has powerfully constricted the vessels. It is sometimes given in acute emergencies in heart troubles, but from what has just been said it can readily be seen that in such emergencies it is just as dangerous as digitalis. In young girls, and especially chlorotic girls, Dr. Wilcox has found no remedy which so satisfactorily regulates the menstrual flow as mammary extract. It should be given for five or six days before the expected period. In anemic girls who flow profusely it is of great service.

DR. AUSTIN FLINT said that a few years ago little or nothing was known concerning the physiology of the ductless glands, and what knowledge we now possess has been derived very largely from the pathologist. He had been surprised and gratified at the wide range of subjects connected with variations of the internal secretions, and their therapeutic applications, discussed in the paper. He could not but feel, however, a certain amount of incredulity in regard to positive, practical results, as it seemed to him that this whole subject was as yet only in its infancy.

PROF. GRAHAM LUSK spoke in regard to the thyroid. Reverdin, in 1882, showed that marked disturbances occurred after extirpation of this gland. He as well as Kocher showed these changes to be like those described by Gull in 1873, and called myxedema. Schiff, in 1856 and later, operated on sixty dogs, fifty-nine of which died within four weeks. If a part of the gland was left, however, or if thyroid was administered by subcutaneous injection or by the mouth, there was an absence of the disturbances mentioned. The importance of these results is apparent. The effects of removal of the thyroid are found to be as follows:

- (1) Emaciation; intestinal absorption.
 - (2) Myxedematous tissue. Mucin is found in the early stages in man and in the monkey. Later there occurs a hyperplasia of connective tissue, embryonic in character. The skin is hard, rough and dry, because there is no secretion. The hair becomes thin and gray, and falls out.
 - (3) Abdominal vaso-dilation; fatty and colloidal degeneration of the liver and kidney; hyaline degeneration of the arterial walls.
- All of the above phenomena are removed after feeding thyroid.
- (4) Metabolism abnormally low; subnormal temperature. The heat reduction is not due to circulatory changes.
 - (5) Nerve and muscle disturbances. Fibrillary contractions occur; in monkeys clonic cramps and tetanic spasms. There is decrease in nerve activity, as shown in motor paralysis and anesthesia. The face loses its expression, because the innervation of the muscles is interfered with. The spasms are of central origin, and due to the action on the spinal cord. There are physical disturbances, due to the action on the cerebral cortex; mental weakness, irritability, stupidity,

(6) The pulse is unchanged in myxedema. If thyroid extract is fed, the pressure is lowered and arterial relaxation occurs.

(7) Diuresis is produced.

DR. OSBORNE, in closing the discussion, spoke of the importance of small doses in giving the organic extracts. Large doses, as of the thyroid, may occasion a great deal of injury. He was much impressed, he said, with Dr. Thomson's views on Graves' disease. As a result, he would in the future diminish the nitrogeaneous food supply of his patients. As to the effect of mercury, he thought it probably stopped some secretion. He could not but believe still, however, that Graves' disease has a great deal to do with the thyroid gland. Alteratives all stimulate the thyroid to greater activity. He had hoped that the physiologists would have said something about the origin of the polymorph-nuclear leucocytes of the blood.

Recent Literature.

A Manual of Practical Anatomy. By the late Professor Alford W. Hughes, M.B., M.C. (Edin.), F.R.C.S. (Edin.), F.R.C.S. (Eng.), Professor of Anatomy, King's College, London, etc. Edited and compiled by ARTHUR KEITH, M.D. (Aberd.), F.R.C.S. (Eng.) In three parts. Part III. The Head, Neck and Central Nervous System. Philadelphia: P. Blakiston's Son & Co. 1902.

We have already reviewed the two preceding volumes of this book. The difficult subjects of the head, neck and central nervous system are treated in a manner similar to the topics already covered. No attempt is made to describe structures exhaustively, but the important bearings of topographical anatomy are everywhere brought into the foreground with good success. The volume is profusely illustrated, and many of the illustrations have the attraction of originality. The three compact volumes taken together form a practical textbook of anatomy which cannot fail to be of service to a wide circle of students and physicians.

The ABC of Photo-Micrography. A Practical Handbook for Beginners. By W. H. WALMSLEY, F.R.M.S., F.A.A.A.S., charter member American Microscopical Society, etc. New York: Tennant & Ward. 1902.

Photo-micrography has taken a firm hold upon the scientific mind, and has become a necessity in the work of publishing papers on widely diversified medical subjects. The manifest advantages of this means of reproduction over the inevitable inaccuracy of drawings, gives it, forthwith, a place from which it cannot be dislodged. This small book of 155 pages, by an expert on the subject of which he writes, is therefore most welcome. It is intended for beginners in the art of photographing with high powers, and details the steps in simple and straightforward language. The volume is embellished with several half-tones in the text and a number of plates illustrative of the work which may be done. We commend the book as a most timely discussion of an increasingly important subject.

The Earth in Relation to the Preservation and Destruction of Contagia. Being the Milroy Lectures delivered at the Royal College of Physicians in 1899, together with other papers on Sanitation. By GEORGE VIVIAN POORE, M.D., F.R.C.P. London, New York and Bombay: Longmans, Green & Co. 1902.

This work of Dr. Poore will well repay careful reading. Dr. Poore is a diligent observer and an original thinker, and while he is not always in accord with the views of ultra-sanitarians, his views appear to be founded upon a sound and logical basis. He is a strenuous advocate of the utilization of household sewage, by applying it to the soil for the purposes of agriculture. In support of his views, he quotes the experience of Holland, where the death-rate of the principal cities has been reduced, since 1877, from an average of about twenty-four or twenty-five per thousand to seventeen or eighteen, under a system of careful utilization.

In his treatment of the subject of the spread of typhoid fever, he says: "Of one thing I am convinced, and it is this, that *under no circumstances whatever should typhoid excreta be mixed with water.*" This may be good sanitary doctrine, but when he says on a following page, "I think there is small room to doubt that the great cause of the increase and wide epidemicity of typhoid fever in modern times has been the water-closet," we can hardly agree with him, since such is not the general experience in American cities.

Undoubtedly the prevalence of typhoid fever in Lawrence, previous to 1893, was due to the free discharge of water-closets in Lowell into the public sewers, carrying with such discharge many typhoid bacilli. But this was an exceptional instance. The greater number of typhoid epidemics of the present day are traceable to the rural districts where sewers and water-closets do not exist.

In his lecture upon milk he shows them the conclusions of Sir Richard Thome as to the cause of the great number of deaths from *tabes mesenterica* in the first year of life, as shown in the registrar general's report, are not entirely trustworthy.

The following pithy sentence from his lecture upon "Dietetics" may be commended to the legion of patent food advertisers: "Our women, especially among the rich, are neglecting the sacred privilege of suckling, and are content to leave their offspring to the tender mercies of advertising tradesmen, who compare badly with the she-wolf that nurtured Romulus and Remus."

Handbook of Medical and Orthopedic Gymnastics. By ANDERS WIDE, M.D. Second revised edition. New York: Funk & Wagnalls Co.

The second edition of this excellent work will be welcomed not only by those interested in the art of massage but by physicians and medical teachers as well. The book avoids superfluity and gives succinctly the principles which are to be borne in mind by the practitioners of the method of manipulative therapeutics. Without attempting an undue amount of medical instruction, the writer presumes in the reader a sufficient amount of practical knowledge, and neither over-instructs nor is superficial.

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THE LIFE AND CORRESPONDENCE OF HENRY
INGERSOLL BOWDITCH.¹

THE biography of Dr. Bowditch by his son is a delightful story of a noble and beautiful life, vividly and charmingly arranged and told for the most part in Dr. Bowditch's own words. He was most fortunate in his parents and early associations, and throughout his life in his home and family relations. He was born in Salem, in 1808, at a time when the influences which developed the finest types of New England character were at their best. Charles Follen, at Harvard, was the first of his teachers to stimulate him to the highest ideals in his education, and he was worthily followed in the medical school by Jacob Bigelow, John Ware and James Jackson. During his two years in Europe he was a favored pupil of the great Louis, listened to Andral, Chaumel, Piorry and Trousseau, and came in contact with Jouffroy, Magendie, Legendre, Lafayette, Herschel and Paget, visiting in his holidays places endeared by memories of Scott and Burns, received cordially everywhere as a son of the distinguished translator of La Place's "*Mécanique Céleste*." His life more than justified these generous opportunities, and he believed that his opportunities imposed upon him corresponding obligations.

When he returned to Boston in 1834, he had chosen medicine rather than surgery, and he never overcame his aversion to using the surgeon's knife. He devoted much of his spare time to translating Louis, to essays and investigations on *Trichina spiralis* and *Lymnæa*, which attracted Virchow's attention, to original work with the microscope, to teaching auscultation and percussion, on which he wrote an excellent manual, and to hos-

pital and dispensary practice; at the same time writing abundantly, attending medical societies, of which he founded one, — the Boston Society for Medical Observation, — reporting cases and taking an active part in discussions. He took the greatest interest in the American Medical Association from its beginning and in broadening its field of usefulness, urging a liberal feeling in ethics and the same rights and privileges to women as to men. He also became an active member of the American Academy of Arts and Sciences and of the Thursday Evening Club.

The mighty struggle was going on that made Indiana, Illinois, Nebraska, Kansas and California free states, and doomed slavery. Runaway slaves were escaping North all along from the coast to the Ohio River. In one Boston house it was not uncommon to find three or four runaway slaves in hiding, waiting for a dark night to start again on their way towards Canada and liberty. The anti-slavery party in New England was at the height of its great activity. Of course Dr. Bowditch joined them. He soon became one of the leaders, entering into the work with all the fervor of his nature, arousing public sentiment, influencing state and national legislation, helping runaway slaves, giving, as he said, as much time as he could spare from his professional duties. In the words of the poet Whittier, "His great enthusiasm for freedom and humanity cheered and stimulated us throughout the long struggle." For a man like Dr. Bowditch in a city such as Boston was then, that meant rare courage and great personal sacrifice.

As early as 1846 he became interested in improving workingmen's tenements, and, after twenty-five years' labor in that field, in securing the passage of an act of the legislature establishing the Boston Co-operative Building Company, which he did so much to direct in its great work.

Positions as admitting physician to the Massachusetts General Hospital and instructor of the medical students of Harvard were followed in due time by the professorship of clinical medicine and appointments as visiting physician and, later, consulting physician to the Massachusetts General and the Boston City Hospitals. He gave his help most generously in the early days of the Carney Hospital, where, as physician and president of the medical staff, the Catholic sisterhood found in him their most earnest support. No one of the hundreds of students who were brought under his influence can ever forget the lofty spirit with which he inculcated in them "the divine zeal for study and for the acquirement of all medical knowledge necessary for any true lover of our 'noble art.'" His patients felt his sympathy and entire devotion. How many times

¹ Life and Correspondence of Henry Ingersoll Bowditch. By his son, Vincent Y. Bowditch. In two volumes. Boston and New York: Houghton, Mifflin & Co., The Riverside Press, Cambridge. 1902.

he came home at night after having given to patients more than the sum of his fees for the day no one will ever know; and he gave himself with his gift.

Dr. Bowditch's skill and training, with an accident to his finger, early led him to devote his attention chiefly to thoracic diseases, and, at the request of the Massachusetts Medical Society in 1854, he prepared his famous paper, read in 1862, on "Soil-Moisture as a Cause of Consumption," which gained him eminence at home and abroad, and led up to the creation of the Massachusetts State Board of Health in 1869, of which he was chairman for ten years, becoming then chairman of the National Board of Health, newly created to meet the great yellow fever epidemic. As chairman of these two boards, pioneers in sanitary reform in this country, Dr. Bowditch gave more of his time than he could spare from his strictly professional duties, and deemed the sacrifice in his income, which was no small gift, part of his share in that great work. Beside making investigations himself, and suggesting them for others in both boards, he had the power of uniting men of varying interests and temperaments to work together in harmony, in spite of unusual difficulties, that was an incalculable help. His centennial address on "Hygiene in America," in 1876, he thought caused his selection as president of the American Medical Association the following year.

In 1850, in utilizing a discovery by Dr. Morrill Wyman, and tapping the chest, which he did safely three hundred times for pleural effusion, finally overcoming all objections to the operation, he became, to quote Dr. Donaldson, one of the benefactors of his race. The titles to his publications, one hundred and sixty-six as given in the Report of the Proceedings of the American Academy of Arts and Sciences, attest his industry and his wonderful power of concentration. In his second, third and fourth visits to Europe, it was a great gratification to him to find the fruits of his labors so well known and appreciated there.

When the war of the rebellion came, in 1861, Dr. Bowditch entered into it with patriotic fire, serving as volunteer to aid wounded soldiers in Virginia, as medical examiner for recruits, with the Sanitary Commission, doing more than any one else to create the public opinion which forced Congress to provide an efficient ambulance system. As friend and co-worker with Governor Andrew and Charles Sumner, he gave his time without stint and his whole soul without reserve, crushed by the death of his eldest son, the soldier hero, but bearing the terrible blow bravely and without a murmur.

Of the beauty of Dr. Bowditch's declining years, of his tenderness and devoted affection always to those dearest to him, of his loyalty to his friends

and his faithfulness to every duty, his letters are full. Strength, truth, courage and religious faith fill his journals, which often show also eloquence, dramatic power and literary grace, reflecting the exact observation and accurate description taught him by Louis. If his life was a strenuous one, his enjoyment of fun and frolic and music was as great as his love of work. He grasped his opportunities with thankfulness that their duties had come to him, and he always blessed the happy marriage that brought him his best counselor and wisest friend as well as devoted wife.

Those who knew Dr. Bowditch could not but feel the inspiration of his example. His life and correspondence is an exquisite picture of strength and beauty of character, as well as a thrilling story of the great anti-slavery fight, which every one will do well to read, made most attractive by the publishers' art and skill.

THE TOXICITY OF CARBON MONOXIDE.

IN view of the frequency of fatal accidents from the inhalation of illuminating gas, it is a matter of importance to determine the danger limit, or the percentage of such gas in the air of a room which would prove fatal during the ordinary occupancy of a room during a single night.

During the course of a series of experiments conducted by the Massachusetts Board of Health in 1884, it was found that there were very many factors which had a decided effect in modifying this percentage.

The toxic element in illuminating gas is unquestionably the carbon monoxide which it contains. Nearly twenty years ago the State Board of Health, by means of these experiments¹, determined the comparative poisonous character of coal and water gas, and found that there were very many limitations as to the question of fatality among those exposed to the action of illuminating gases, such as the size of rooms, the rate of flow through burners or leaks, the length of exposure, and the existence of cracks, or other outlets, as well as the porosity of the walls.

No definite attempts were then made to ascertain with precision what percentage of gas of either kind, when admitted to a room, was sufficient to cause death. It was found, however, that in a room containing 800 cubic feet (about the size of an ordinary hotel bedroom), with a burner wide open, and gas escaping at the rate of six feet per hour for ten hours, not more than 2 or 3% of gas would be found in the room at the end of that time, although there should be 7.5% in an air-tight

¹ Report of 1884, Sixth Supplement of Health Department, H. L. & C.

chamber. The balance had escaped through the walls and small openings. But even this small amount, of 2 or 3%, was found to be fatal to animals, since nearly one third of its volume consisted of carbonic oxide, or from 0.7 to 1% of the air of the room.

A series of experiments² appears to have been made by Professor Mosso at Turin, Italy, in a tight, iron chamber, constructed for the purpose. Its capacity was 5,740 liters (203 cubic feet), and it was lighted by a glass window and hermetically closed by a door. The first experiment was made upon a man, who entered the chamber at 3.30 P.M., and 0.177 of a cubic foot of carbon monoxide was admitted. Smaller quantities were afterward let in at intervals up to 4.48 P.M., when 0.635 cubic foot had passed in, or 0.3% ($\frac{3}{100}$) of the capacity of the room. At 5.10 the man came out and declared that he had not suffered from the experiment, though for the last twenty-two minutes he had breathed the air at its maximum toxicity.

Ten days afterward he submitted to another experiment. He entered the chamber at 3.50 P.M., pulse 88, respiration 28. Five minutes later 0.177 cubic foot of CO was introduced, and three minutes later the pulse was 81, respiration 28. At 4.10 the same quantity of CO was again admitted. In five minutes the pulse was at 80 and respiration 38. At 4.34, 0.25 cubic foot was introduced, and ten minutes later the breathing had again dropped to 28, pulse 82. A minute later 0.14 of gas was introduced, making in all 0.35% of the air capacity of the room, or $\frac{7}{200}$. The man was left undisturbed till 5.16 P.M., when he was examined. His pulse was 86, respiration 26. Four minutes later he left the room, after remaining in it one hour and twenty-five minutes, during thirty-five minutes of which he was exposed to the maximum amount of CO in the chamber. Except for a certain amount of "heaviness" in the head, he did not seem to be materially affected. There were slight changes in the pulse and respiration, and he had some headache.

Several months later (in March) the same man submitted himself for experiment again. He took food as usual at midday, and entered the experimental chamber at 4.15 P.M. Five minutes later the gas was admitted slowly, and the supply was stopped at 4.37 P.M., 0.92 cubic feet of gas, or 0.43% ($\frac{43}{100}$) of the capacity of the room having been introduced. At 5.03 P.M. Professor Mosso was informed that the man's breathing was imperceptible. On entering the room he found the man motionless, with his head "in a cataleptic position," but his arms were not rigid and moved easily,

neither contracting nor dropping. He was dragged out and laid on the floor. Breathing had ceased and the pulse was imperceptible. Artificial respiration was resorted to, and a strong jet of compressed oxygen directed upon his face. By 5.07 P.M. danger had passed and respiration began — slowly and superficially at first, then deeper and more frequently. The man had violent muscular contractions; shuddered, and moved like one in an epileptic fit. On being called by name he opened his eyes, but did not speak, and he relapsed into a state of depression when the administration of oxygen ceased. By 5.9 P.M. consciousness had returned, but he remembered nothing about what had happened. His pulse was then 120.

M. Grehaut, another experimenter, employed this limit or percentage of CO in experimenting upon dogs, and found that this percentage, 0.43 (less than one-half of one per cent), was sufficient to kill a dog after one hour's exposure. On examining the animal after death, bright red blood was found in the veins. A portion drawn from the vena cava showed a high percentage of carbon monoxide. Part of the venous blood was agitated with oxygen for measuring the respiratory capacity, and the result demonstrated conclusively that it was greatly oxy-carbonated, and could absorb but little oxygen. This caused the animal's death.

From these experiments M. Grehaut concluded that a proportion of CO equivalent to $\frac{43}{100}$ of the air capacity of a room, or 0.43%, is sufficient to cause death either of man or dog.

These experiments were not made with illuminating gas but with pure carbon monoxide, its most poisonous constituent.

ACID INTOXICATION IN DIABETES.

THE discovery that diabetic coma was due to an acid intoxication of the body was a notable advance in our knowledge of diabetes. It furnished a starting point for further investigation. This was first directed to the determination of the specific acid, and almost sooner than could be expected the problem was solved by Minkowski and Küllz, who isolated B-oxybutyric acid from the urine of patients dying in diabetic coma. A little later this question was more thoroughly studied by Magnus Levy. He showed that the body of such a patient contained as much B-oxybutyric acid and its derivatives per kilo body weight as Walther had found necessary to produce acid intoxication in a dog.

The symptomatic treatment of diabetic coma in consequence received a great impetus. To be sure but few cases have recovered from actual coma by the use of alkalies, but unquestionably the prophyl-

² Journ. of Gas Lighting, etc., London, Nov. 18, 1902.

lactic use of bicarbonate of soda has prolonged life for months. Progress, however, is still being made in this condition, and, as is usually the case, along strictly scientific lines.

The source of the B-oxybutyric acid and its derivatives was the next question to be attacked. These bodies may be synthetically produced in the system or derived in some way from the food. The latter is the far more reasonable hypothesis. Of the three classes of food stuffs, carbohydrates were the first to be excluded as a possible source. This was easy of demonstration, for it was found that the acid intoxication produced by an exclusive meat and fat diet disappeared at once when carbohydrates were eaten. Not so easily has the matter been settled with proteids. But the case is fairly represented by the statement that v. Norden in his third edition has changed his former opinion and accepted Magnus Levy's view that proteids are not the source.

Having ruled out the carbohydrates and proteids, the fats remain by exclusion the source of the acid intoxication. And there is much in favor of this explanation, but into this we cannot now enter. If this is accepted, the next question which arises is as to the nature of the fat. Is it one particular kind of fat, or is the variety indifferent? It is with this special subject that some suggestive work has recently been done. Hagenburg has reported that a diminution in the excretion of acetone followed the exclusive use of fat when taken in the form of bacon; Schwarz, on the other hand, noted an increase of acetone with a diet containing much butter. Grube has repeated their work qualitatively, and confirms their results. It is too early yet to draw far-reaching inferences from these data, but it seems probable that the higher fats, palmitin and stearin, have less to do with the production of diabetic coma than the lower fats, olein and butyric acid, which are present to such great extent in butter. If the coma of diabetes could be traced to one special variety of fat, a new and simpler problem for study would be gained. In the meantime, it may be well to urge our advanced cases of diabetes to eat less butter, but more fat of meat.

MEDICAL NOTES.

INVESTIGATION OF CATTLE PLAGUE OF RHODESIA. — It is reported from Berlin that Professor Koch has sailed for Beira for the purpose of investigating the cattle plague in Rhodesia. The disease is said to be unusual in character and to date only from the late war. Imported cattle are said to have succumbed early to the disease.

DESTRUCTION OF PLAGUE-INFECTED RATS. — The statement is made that swarms of rats supposed to be infected with plague which infest the sea wall at Yokohama are being destroyed by carefully cementing over every possible mode of egress from the wall.

PATHOLOGICAL LABORATORY IN EAST ORANGE, N. J. — Dr. William B. Graves of East Orange, N. J., is reported to have given a well-equipped bacteriological and pathological laboratory to the Orange Memorial Hospital. The laboratory will be at the disposal of all physicians living in the Oranges.

THREE CENTENARIANS. — Miss Mahala Terry, a "real" daughter of the Revolution, died recently in Simsbury. She had lived over a century, having been born in Simsbury on Independence Day, 1802. Mrs. Hannah Burke, the oldest woman in Taunton, died last week at the reputed age of 101 years. The death of Refugio Hernandez Pontolongon, who is said to have been the oldest inhabitant of Mexico, is also announced. The claim of an age of 124 years may be taken with some allowance.

A DOUBTFUL COMPLIMENT. — The following statement has recently appeared in the columns of one of our esteemed contemporaries, in relation to the death of a distinguished member of the profession: "Dr. —'s death, however, was doubtless inevitable, as he enjoyed all the advantages of skilled attendance." If this be our attitude toward ourselves what wonder that those without the professional ranks should scoff!

THE JOURNAL OF CUTANEOUS DISEASES. — Beginning with the issue for January, 1903, "The Journal of Cutaneous Diseases" will be under the editorial management of Dr. James C. White and Dr. John T. Bowen of Boston, Dr. James Nevins Hyde of Chicago, Dr. Henry W. Stelwagon of Philadelphia, Dr. Prince A. Morrow, Dr. Edward E. Bronson, Dr. George T. Jackson and Dr. John A. Fordyce of New York.

Dr. A. D. Mewborn of New York will be the acting editor. It is the desire of the new management to present a monthly review of all important advances in dermatology and syphilis both in this country and abroad.

The journal has been made the official organ of the American Dermatological Association and will publish, in addition to its transactions, the proceedings of all the local societies throughout the country devoted to this specialty. All communications relating to the editorial department should be addressed to Dr. A. D. Mewborn, 224 West Fifty-second Street, New York.

DIET EXPERIMENTS.—Owing to certain criticisms of food preservatives brought against American exportations, the Department of Agriculture has instituted systematic experiments to determine whether or not the substances used are deleterious. Twelve healthy young men are to receive daily with their food certain of these preservatives, and careful record made of their effect. Accurate records will be kept of the weight, etc., of the men during the progress of the experiments. Interesting and important results are anticipated.

A NEW "MEDICAL LIBRARY AND HISTORICAL JOURNAL."—On Jan. 15 a new medical journal with the above title will be published, "Devoted to the Interests of Medical Libraries, Bibliography, History and Biography." It is designed to fill a place occupied by no other journal, and will be the only magazine published in the English language devoted to the subject of medical history.

Original articles will embrace the subjects of medical history and biography, practical medical library administration and economy, medical bibliography, the care of books, the history, construction and use of medical libraries, etc. A bibliographical feature will be the publication of a complete index medicus of every current medical book, both English and foreign. All communications should be addressed: Medical Library and Historical Journal, 1313 Bedford Avenue, Brooklyn, N. Y.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Jan. 14, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 30, scarlatina 41, measles 19, typhoid fever 18, smallpox 17.

MASSACHUSETTS CREMATION SOCIETY.—At the recent meeting of the Massachusetts Cremation Society, it was stated that there were 217 cremations in 1902 at their Forest Hills Crematory, an increase of 45 over 1901. In Mount Auburn there were 134 cremations last year, as against 119 in 1901. Altogether, 1,749 persons have been cremated in and about Boston since the establishment of the practice.

The late Dr. John Homans, 2d, an active member of the society, and at the time of his death its clerk, left \$1,000, which is to be used for improvements in the building and its approaches at Forest Hills.

LONG ISLAND HOSPITAL.—Dr. Simon F. Cox has been appointed resident physician at the Long Island Hospital, Boston Harbor.

LOWELL INSTITUTE LECTURES.—Dr. Henry P. Bowditch is now giving a course of lectures in the Lowell Institute on "Some Problems of Modern Physiology." In the last lecture he considered "Foods and Relishes," speaking at some length, under the heading of the latter, of the physiological action of alcohol.

A WARNING TO PHYSICIANS.—We are informed by the Boston office of the Pinkerton Detective Agency that the individual who has been recently visiting the offices of physicians in the Back Bay district and claiming to represent the agency is not in their employ, and that they will be obliged for information by telephone regarding him.

SMALLPOX AT FOXBORO, MASS.—Several very mild cases of smallpox are reported to have appeared among the inmates of the Massachusetts Hospital for Dipsomaniacs and Inebriates at Foxboro, Mass. A very rigid quarantine has been established, and there is small probability of a spread in the disease.

REUNION OF BOSTON CITY HOSPITAL NURSES.—A large number of nurses of the Boston City Hospital Training School celebrated the twenty-fifth anniversary of the school last week, at the Vose House, in connection with the hospital. Addresses were made by Dr. George H. M. Rowe, Dr. Edward Cowles, Dr. David W. Cheever, the Hon. Henry H. Sprague for the Board of Trustees, and Miss Linda Richards, who was the first superintendent of nurses at the hospital. Miss Richards urged the desirability of state registration of nurses as a possible means for the prevention of such unfortunate occurrences as those associated with Jane Toppan. A hall clock was presented to the building by Mr. A. Shuman, of the Board of Trustees.

NEEDS OF TAUNTON INSANE HOSPITAL.—The trustees of the Taunton Insane Hospital, in their annual report, ask for a new building for male nurses, for further accommodation for patients, and for the acquisition of more land. It is also urged that provision should be made for criminal insane women, as is done for men. The parole system which has been extensively used is claimed to have proved entirely satisfactory.

COMPULSORY VACCINATION IN MELROSE, MASS.—The Board of Health of Melrose, Mass., has ordered compulsory vaccination in case of all those who have not been vaccinated within fourteen months. Physicians will be employed for the work. This measure is wholly prophylactic, since no cases of smallpox are reported in that city.

AWARD OF SCHOLARSHIPS IN THE HARVARD MEDICAL SCHOOL.—The following scholarships have been awarded to students of the first year for 1902-03: The Lewis and Harriet Hayden scholarship of \$200 was equally divided between Marcus L. Barker and James G. Trimble, both of the first year. The David William Cheever scholarship of \$250 was awarded Arthur H. Crosbie, of the first year. The income of the John Foster Fund amounting to about \$150 was equally divided between Henry W. Godfrey and Charles H. Holt, both of the first year.

MILK INSPECTION IN BOSTON.—As a result of charges brought by the milk inspector of Boston, a large number of cases were recently investigated in the Municipal Criminal Court. Fines were imposed on five persons for the sale of adulterated milk, on three for the sale, without warning, of oleomargarine, and on one for selling vinegar not made from apple juice. Six cases are on bail, awaiting further investigation, and a number more are to be disposed of later.

CAISSON DISEASE.—Cases of caisson disease, occurring in workmen at the East Boston tunnel, continue to report at the hospitals. Two have recently been treated at the City Hospital Relief Station.

TYPHOID FEVER AT LITTLETON, N. H.—Typhoid fever is reported to have appeared in epidemic form at Littleton, N. H. Lancaster and St. Johnsbury are also having a considerable number of cases.

NEW YORK.

DR. N. H. HENRY, ADJUTANT-GENERAL.—Governor Odell has reappointed Dr. Nelson H. Henry of New York, adjutant-general of the state.

APPOINTMENT OF DR. L. E. LAFETRA.—At a meeting of the trustees of Columbia University held Jan. 5, Dr. L. E. LaFetra was appointed instructor in diseases of children and chief of clinic in that department at the College of Physicians and Surgeons.

A NEW INCINERATING PLANT.—What is considered by engineers as one of the most important innovations in the Street Cleaning Department for many years is an incinerating plant, which has been put into operation by the commissioner, Dr. Woodbury, at a department pier on the Hudson River front. It is the device of H. D. B. Parsons, the consulting engineer to the department, and embodies the result of his investigations in regard to the disposal of refuse made in Boston, Montreal and various European cities. The expense of run-

ning the plant is very small, and it consumes sixty tons of rubbish a day, or one fifth the entire amount collected in the borough of Manhattan. Of the sixty tons of material, there remains but one ton of ash, and this is utilized by the Park Department for fertilizing purposes. The experiment has proved so successful that arrangements will be made for the establishment of a sufficient number of other similar plants at various points to dispose of the entire refuse of the city.

LEMON JUICE AND TYPHOID FEVER.—It having been announced by the Chicago Board of Health that lemon juice is a preventive of typhoid fever, and that a teaspoonful of it in a glass of water contaminated with typhoid bacilli is sufficient to destroy the germs, Dr. William H. Park, of the bacteriological division of the New York Health Department, recently made a series of experiments at the laboratory in East Sixteenth Street, with a view to confirming or disproving the statements made. It was asserted that the experiments of the Chicago bacteriologists, instituted in consequence of the fact that Dr. Asa Ferguson of London had reported that lemon juice was destructive of typhoid germs, had confirmed Dr. Ferguson's results in every instance. Dr. Park found that, although the citric acid killed the micro-organisms, the action required too much acid and too much time to render lemon juice practically serviceable as a prophylactic. His experiments showed that two and a half teaspoonfuls of the latter, added to half a glass of water, failed to destroy all the bacilli in thirty minutes. A typhoid culture which had been subjected to a one per cent solution showed in thirty minutes one fifth as many colonies as before, while in the case of a one-tenth of one per cent solution the colonies were reduced only one half in that time. Motile bacilli in small numbers were also still visible in a drop of a five per cent solution after thirty minutes' action. In speaking of the matter Dr. Park stated that his previous opinion as to the inadequacy of lemon juice for the purpose named was confirmed by the tests, and that it was far safer to boil or properly filter the water than to trust to lemon juice to destroy any typhoid bacilli which might be present. It is reported by the State Board of Health that the deaths in the state during the last quarter of 1902 were one-tenth of one per cent less than in the corresponding quarter of the previous year. There was a diminished prevalence of most infectious diseases (notably smallpox) and of diseases affecting infancy and childhood, but some increase in the mortality from diseases of the respiratory, circulatory and nervous systems. The total number of deaths was less than the average of the last five years for the corresponding period.

THE DEATH OF "TOPSY."—"Topsy," an elephant ten feet high and weighing six tons, which had become unmanageable, was recently successfully electrocuted (to employ the somewhat barbarous expression which usage has now sanctioned) at Coney Island. It is stated that the current used was of the strength of sixty-six hundred volts, one electrode being applied near the right fore foot and the other near the left hind foot, and death appeared to be practically instantaneous. Within ten seconds the animal fell and rolled over on her right side motionless, and in two minutes from the time of turning on the current she was pronounced dead. Just previous to the application of the electricity about an ounce of potassium cyanide was given to the elephant in her food, in case the current should not work successfully.

PHIPPS INSTITUTE FOR STUDY OF TUBERCULOSIS.—It is announced that Henry Phipps of New York, formerly a partner of Andrew Carnegie, is to establish in Philadelphia an institute, to be called his by name, for the study, treatment and prevention of tuberculosis, and that he will endow it with at least one million dollars. It is also stated that preliminary arrangements have already been made to have the International Congress on Tuberculosis meet in Philadelphia, under the auspices of the institute, in 1905. It is expected that when the congress is held in Paris next year, its biennial session rule will be suspended in order to admit of this.

EMPLOYMENT OF NURSES TO VISIT TENEMENT HOUSES.—During the past autumn the Health Department has inaugurated the employment of nurses to visit the tenement homes of the children of the public schools, a measure which has added very materially to the practical usefulness of the more rigid medical inspection of the children at the schools, particularly as regards diseases of the eye. It was thought that it was not enough to send home the pupils excluded for some form of contagious affection, usually of the eye, skin or hair. The parents did not know how to care for them, and if they could not return speedily much valuable time would be lost. Accordingly, the experiment was tried of placing a nurse from the Nurses' Settlement on duty, with the children of five schools under her supervision. Visiting the homes of the excluded children, she showed the mothers what to do for them, treating in twenty days eight hundred and twenty-five cases of such a character as she was competent to manage (securing medical care for more serious ones), and enabling nearly all the children to return to school. Encouraged by this success, the department has increased the number of such trained nurses to thirteen, and it is expected still further to extend the system.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 3, 1908.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Scarlet fever.	
New York . .	3,785,156	1,241	348	20.03	13.05	3.03	1.53	.80	
Chicago . . .	1,985,370	628	186	22.76	17.51	2.22	3.50	.80	
Philadelphia .	1,878,627	583	180	18.43	16.92	2.44	1.88		
St. Louis . . .	618,481	—	—	—	—	—	—	—	
Baltimore . .	538,713	214	56	17.99	19.63	3.97	.98		
Cleveland . .	427,731	—	—	—	—	—	—	—	
Buffalo . . .	357,994	—	—	—	—	—	—	—	
Pittsburg . .	351,745	175	61	23.43	17.14	3.42	2.86	.57	
Cincinnati . .	335,140	—	—	—	—	—	—	—	
Milwaukee . .	315,807	—	—	—	—	—	—	—	
Washington .	225,103	—	—	—	—	—	—	—	
Providence . .	191,220	73	15	11.10	26.87	1.89	—	—	
Boston . . .	608,168	238	58	20.59	18.50	1.68	1.88	3.10	
Worcester . .	182,044	33	11	12.12	21.21	—	3.08	—	
Fall River . .	115,549	48	23	10.41	14.58	—	—	—	
Lowell . . .	101,959	34	14	14.70	20.59	5.88	—	—	
Cambridge . .	96,639	25	8	12.00	13.00	—	—	4.00	
Lynn	72,497	21	3	13.06	—	4.76	—	—	
Lawrence . .	69,766	21	10	14.28	33.33	4.76	—	—	
Springfield .	69,389	28	6	7.14	10.71	—	3.57	—	
Somerville . .	68,110	14	6	7.14	57.13	7.14	—	—	
New Bedford .	67,198	31	11	16.13	29.03	3.32	—	3.23	
Holyoke . . .	49,226	14	5	7.14	21.42	—	—	—	
Brockton . .	44,873	18	2	20.00	—	—	—	—	
Haverhill . .	42,104	10	3	40.00	30.00	—	—	—	
Newton . . .	37,794	6	1	—	—	—	—	—	
Salem	36,876	—	—	—	—	—	—	—	
Malden . . .	36,386	7	—	28.57	—	—	—	—	
Chelsea . . .	35,878	9	3	11.11	22.22	—	—	—	
Fitchburg . .	35,069	7	4	14.30	14.30	—	—	—	
Taunton . . .	33,656	—	—	—	—	—	—	—	
Everett . . .	28,620	10	2	20.00	—	10.00	—	—	
North Adams .	27,863	6	—	16.67	16.67	—	—	—	
Gloucester . .	26,121	5	2	40.00	—	20.00	—	—	
Quincy . . .	26,043	4	1	25.00	—	—	35.00	—	
Waltham . . .	25,198	13	1	16.67	25.00	—	—	—	
Brookline . .	22,606	—	—	—	—	—	—	—	
Pittsfield . .	22,589	5	—	—	40.00	—	—	—	
Chicopee . . .	21,031	11	4	37.37	9.09	9.09	—	9.09	
Medford . . .	20,963	6	1	—	16.67	—	—	—	
Northampton .	19,883	8	6	12.50	—	—	—	—	
Beverly . . .	15,303	—	—	—	—	—	—	—	
Clinton . . .	15,161	8	4	25.00	—	12.50	—	—	
Leominster . .	14,906	—	—	—	—	—	—	—	
Newburyport .	14,478	4	0	—	50.00	—	—	—	
Woburn . . .	14,300	—	—	—	—	—	—	—	
Hyde Park . .	14,175	6	1	50.00	—	—	—	—	
Adams	13,745	—	—	—	—	—	—	—	
Atholboro . .	13,677	—	—	—	—	—	—	—	
Marlboro . . .	13,609	—	—	—	—	—	—	—	
Melrose . . .	13,600	3	—	33.33	—	—	—	—	
Westfield . .	13,418	4	—	—	—	—	—	—	
Milford . . .	13,199	—	—	—	—	—	—	—	
Revere	12,722	7	2	14.20	28.60	—	—	—	
Frammingham .	12,584	6	3	33.33	33.33	—	—	—	
Peabody . . .	12,179	—	—	—	—	—	—	—	
Gardner . . .	11,923	—	—	—	—	—	—	—	
Weymouth . .	11,344	5	0	—	90.00	—	—	—	
Southbridge .	11,368	—	—	—	—	—	—	—	
Watertown . .	11,077	4	—	—	50.00	—	—	—	
Plymouth . .	10,730	—	—	—	—	—	—	—	

Deaths reported, 3,587; under five years of age, 984; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 697, acute lung diseases 574, consumption 357, scarlet fever 24, whooping cough 37, cerebrospinal meningitis 5, smallpox 12, erysipelas 6, measles 17, typhoid fever 65, diarrheal diseases 61, diphtheria and croup 101.

From whooping cough, New York 6, Chicago 10, Philadelphia 4, Baltimore 1, Pittsburg 4, Providence 1, Boston 5, and Lawrence, New Bedford, Springfield, Haverhill, Gloucester and Frammingham 1 each. From erysipelas, Chicago 4, Philadelphia 1, Pittsburg 1. From smallpox, Pittsburg 7, Boston 4, Philadelphia 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,863,880, for the week ending Dec. 20, the death-rate was 19.6. Deaths reported, 5,582; acute diseases of the respiratory organs (London) 409, whooping cough 98, diphtheria 100, measles 233, smallpox 6, scarlet fever 72. The death-rate ranged from 6.5 in Wallasey to 23.0 in Newport (Mon.); London 19.6, West Ham 14.4, Brighton 25.1, Portsmouth 17.1, Southampton 16.5, Plymouth 16.1, Bristol 23.2, Birmingham 19.5, Leicester 13.3, Nottingham 16.7, Bolton 16.2, Manchester 20.1, Salford 26.5, Bradford 18.7, Leeds 18.7, Hull 22.5, New Castle-on-Tyne 21.0, Cardiff 21.4, Rhondda 18.7, Liverpool 26.4.

METEOROLOGICAL RECORD

For the week ending Jan. 3, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S. . 28	30.03	20	26	14	77	85	81	W	SW	11	12	C.	C.	0
M. . 29	30.16	32	42	31	69	100	84	S	SW	6	16	C.	R.	.04
T. . 30	30.13	36	41	30	96	57	72	W	W	9	13	F.	C.	.06
W. . 31	30.35	33	40	28	70	34	52	W	SW	12	12	C.	C.	0
T. . 1	30.16	39	50	28	39	40	40	SW	SW	12	15	C.	C.	0
F. . 2	30.19	40	46	34	55	60	58	W	SE	10	6	C.	O.	0
S. . 3	30.52	39	42	36	100	98	98	E	SW	38	12	R.	O.	.78
32	30.06		41	27			69							.88

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. **32**—Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 8, 1903.

BAILHACHE, PRESTON H., surgeon. Granted leave of absence, on account of sickness, for thirty days, from Jan. 6. Jan. 8, 1903.

CARTER, H. R., surgeon. Leave of absence for three days from Jan. 5, 1903, under paragraph 179 of the regulations.

GREENE, J. B., passed assistant surgeon. Relieved from duty at New York (Stapleton). Dec. 31, 1902.

GRUBBS, S. B., passed assistant surgeon. To proceed to Guaymas, Mexico, for special temporary duty. Jan. 8, 1903.

PARKER, H. B., assistant surgeon. To report to chairman of Board of Examiners at Washington, D. C., Jan. 12, 1903, to determine his fitness for promotion to the grade of passed assistant surgeon. Jan. 5, 1903.

VON EZDORF, E. H., assistant surgeon. To report to chairman of Board of Examiners at Washington, D. C., Jan. 12, 1903, to determine his fitness for promotion to the grade of passed assistant surgeon. Jan. 5, 1903.

ANDERSON, J. F., assistant surgeon. To report to chairman of Board of Examiners at Washington, D. C., Jan. 12, 1903, to determine his fitness for promotion to the grade of passed assistant surgeon. Jan. 5, 1903.

ROBINSON, D. E., assistant surgeon. Relieved from duty at Seattle, Wash., and special temporary duty at Port Townsend Quarantine, and assigned to duty at Port Townsend Quarantine. Dec. 31, 1902.

KEYES, J. M., acting assistant surgeon. Granted leave of absence for thirty days from Jan. 5. Dec. 24, 1902.

SAMS, F. F., acting assistant surgeon. Granted leave of absence, on account of sickness, for thirty days, from Jan. 1, 1903. Jan. 5, 1903.

BROWN, F. L., pharmacist. Granted leave of absence for ten days from Dec. 26. Dec. 27, 1902.

SCHLAAR, W. F., pharmacist. Relieved from duty at Washington, D. C., and directed to proceed to Boston (Chelsea), Mass., and report to medical officer in command for duty and assignment to quarters. Jan. 6, 1903.

RESIGNATION.

Acting Assistant Surgeon J. M. Keyes resigned, to take effect Feb. 3, 1903.

BOARD CONVENED.

Board convened to meet at Washington, D. C., Jan. 12, 1903, for the examination of assistant surgeons to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the Board. Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon-General G. T. Vaughn; Assistant Surgeon-General H. D. Geddings, recorder.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 10, 1903.

E. S. BIGERT, medical director, retired. Detached from the Naval Recruiting Station, New York, and to continue duty at Marine Recruiting Station, New York.

T. WOOLVERTON, medical inspector, retired. Ordered to the Naval Recruiting Station, New York.

J. H. HOLLOWAY, assistant surgeon. Commissioned assistant surgeon from Sept. 26, 1902.

J. A. GUTHRIE, passed assistant surgeon. Detached from the "Yorktown" and ordered to the "Vicksburg."

K. OHNESORG, assistant surgeon. Detached from the "Vicksburg," and ordered to the "Yorktown."

A. E. PECK, assistant surgeon. Detached from the "Annapolis" and ordered to the Naval Station, Cavite, P. I.

U. R. WEBB, assistant surgeon. Detached from the Naval Station, Cavite, P. I., and ordered to the "Annapolis."

B. F. STEPHENSON, medical inspector. Retired from active service on account of disabilities incurred in the line of duty, Jan. 3, 1903, and to continue on duty at Naval Hospital, Portsmouth, N. H.

S. H. DICKSON, medical inspector. Detached from the "Iowa" and ordered to the "Newark" as fleet surgeon of the South Atlantic Station.

H. H. HAAS, passed assistant surgeon. Detached from the "Montgomery" and ordered to the "Prairie."

J. E. PAGE, passed assistant surgeon. Detached from the "Newark" and ordered to the "Montgomery."

SOCIETY NOTICES.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The annual meeting of the society will be held at 3 Park Street, Boston, Mass., on Thursday, Jan. 15, 1903, after the dinner.

Dinner will be served at 6.30 P.M.

DR. AGNES C. VIETOR, Secretary, Trinity Court, Boston.

BOSTON MEDICAL LIBRARY MEDICAL MEETING.—The regular meeting will be held in the John Ware Hall, Medical Library Building, The Fenway, on Monday, Jan. 19, 1903, at 8.15 P. M. sharp.

Program: "Consideration of Blood Pressure," statement by the president; Prof. George W. Crile, M.D., of Cleveland, Ohio, "Some Observations on the Methods of Controlling the Blood Pressure"; Harvey Cushing, M.D., of Baltimore, Md., "Clinical Value of Blood Pressure Observations."

Discussion: Prof. Wm. T. Porter; J. M. Jackson, M.D.; E. C. Cabot, M.D. Dr. F. B. Lund will show a "Case of Intercapulo-thoracic Amputation for Sarcoma of the Median Nerve."

ARTHUR K. STONE, M.D., Secretary, 543 Boylston Street.

RECENT DEATHS.

ALBERT WARING ATWATER, M.D., whose death has recently been announced, was born at Burlington, Vt., July 24, 1861, and was graduated at the University of Vermont Medical College in 1885. He established himself at St. Regis Falls, N. Y., where he practised up to the time of his last illness. He was unmarried. He was the third successive physician of his name.

NATHANIEL DOWNES, M.D., M.M.S.S., died in Boston, Jan. 8, 1903, aged eighty-four years.

CARL A. EICHLER, M.D., a retired New York physician, died on Jan. 4 from cardiac disease, at the age of seventy-six. He was born and studied medicine in Germany, and came to this country in 1858. At one time he was deputy health officer on Staten Island.

RESIGNATION AND APPOINTMENTS.

DR. A. L. MASON has resigned the position of visiting physician at the Boston City Hospital, and has been appointed a senior physician upon the staff of the hospital.

DR. GEORGE G. SEARS has been appointed a visiting physician at the Boston City Hospital in place of Dr. Mason, resigned.

DR. JOHN W. BARTOL has been appointed an assistant visiting physician in place of Dr. Sears, promoted.

There is a resulting vacancy in the Medical Out-patient Department of the Boston City Hospital.

BOOKS AND PAMPHLETS RECEIVED.

X-Rays in the Treatment of Cancer and Other Malignant Diseases. By Emil H. Goubbé, B.S., M.D., of Chicago, Ill. Reprint. 1902.

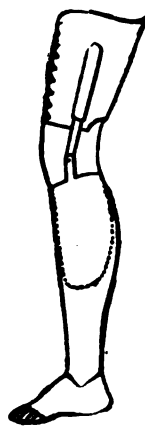
Life and Correspondence of Henry Ingersoll Bowditch. By his son, Vincent Y. Bowditch. In two volumes. Illustrated. Boston and New York: Houghton, Mifflin & Co. 1902.

A Case Illustrating the Neglected Results of Infantile Paralysis, and the Treatment. By Samuel W. Kelley, M.D., of Cleveland, Ohio. Reprint. 1902.

Rheumatic Appendicitis. A Study of the Relation of Rheumatism to Appendicitis. By William A. Edwards, M.D., of Coronado Beach, Cal. Reprint. 1902.

Littoral California. By William A. Edwards, M.D., of Coronado, Cal. Reprint. 1902.

Report of the Commissioner of Education for the Year 1900-1901. Vol. I. Washington: Government Printing Office. 1902.



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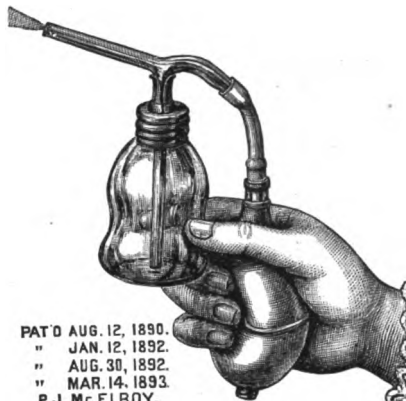
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Original Articles.

VAGINAL CELIOTOMY, ITS SCOPE AND LIMITATIONS.¹

BY J. RIDDLE GOFFE, M.D., OF NEW YORK,

Professor of Gynecology in the New York Polyclinic Medical School and Hospital; Visiting Gynecologist to the New York City Hospital, etc.

In a paper read at the twenty-fourth annual meeting of the American Gynecological Society, held at Philadelphia in May, 1899, I said: "In the evolution of the vaginal method as a route of attack in the surgical treatment of pelvic diseases we have now reached that stage in which it is no longer confined, on the one hand, to simple puncture and drainage, nor limited, on the other, to the radical operation of hysterectomy. Experience has gradually broadened the application of this method to various conditions in the pelvis, and, with the improved technique, has so facilitated the work that in the hands of the expert the condition must be extremely rare that is not amenable to it." Since that time I have found this method applicable to conditions beyond the limits I then assigned it. One procedure which I deem of great value will enter into the discussion to-night.

There are two vaginal incisions through which the pelvic cavity can be reached; one posterior to the cervix into Douglas' pouch, and the other anterior to the cervix, separating the bladder from the uterus and opening up to view and touch the entire contents of the pelvis. The latter is the one which affords the greater facilities for operative procedures, and the one which I depend upon almost exclusively. The posterior incision is frequently used in connection with it to afford additional opportunity for manipulation, and, in some cases, for the purpose simply of securing drainage. Briefly, the procedure consists in making a transverse incision in front of the cervix corresponding to that employed in complete vaginal hysterectomy. Through this incision the bladder is dissected from the uterus up to the peritoneal fold. The peritoneum may then be incised and the peritoneal cavity opened, or that can be left until the next step in the process is completed, which consists in making a longitudinal incision through the vaginal mucous membrane and sheath throughout its entire length. This is accomplished by grasping the edge of this transverse incision either side of its middle point by two artery clamps. Tension upon these clamps puts the anterior vaginal wall upon the stretch; and an incision is made with the knife from the neck of the bladder down to the center of the transverse incision. The bladder is then dissected off the vagina for the distance of an inch or an inch and a half either side of this longitudinal incision. The purpose of this longitudinal incision and the separation of the bladder is to secure sufficient room in which to work. The dissection is done almost exclusively with the handle of the scalpel and the finger, and the hemorrhage is inconsiderable. Through this opening, whether in virgin or multipara, ample space is afforded for whatever radical or conservative work upon the uterus and its appendages may be indicated.

The simplest and at the same time very important function which is subserved by an incision into any of the large cavities of the body is that of an exploratory operation. An exploratory incision, so far as possible, should be free from danger; should give facilities for gaining the desired information, and at the same time afford opportunity for the completion of such surgical procedures as may be indicated.

In my hands the anterior vaginal incision fulfills these functions most satisfactorily. (1) It is free from danger; more than that, it is devoid of any untoward or annoying consequences. When I first began its use I felt that it might be followed by more or less serious bladder symptoms. In this, however, I have been happily disappointed. Indeed, I have yet to meet the first case in which there has been any symptom following this procedure referable to the urinary apparatus. The tissues through which the opening is made seems to be unusually tolerant of traumatic interference, and the generous blood supply of these parts favors prompt and complete healing. (2) As an exploratory incision I have found it to afford the means of accurate, definite and reliable information in regard to the entire contents of the pelvis. (3) The third condition is the important one, but experience alone reveals how wide is the scope of its application.

The simplest application of the vaginal method, and the one that probably commends itself most widely, I was about to say universally, to the profession, is incision and drainage of pelvic abscesses. Accumulations of pus in the pelvis may have various locations, depending upon whether they arise from puerperal conditions or the results of infection under all the general conditions of life. But whether the pus be in the cellular tissue, in the Fallopian tubes, in the ovaries or in peritoneal spaces between coils of intestine and adjacent tissues, the conservative and at the same time the efficient method of attack is vaginal incision and drainage. Under these conditions the anterior incision is rarely used, the opening being made posterior to the cervix or in the lateral sulci of the vagina. The predominant indication for this procedure is in cases of large pelvic abscesses, in patients acutely ill and in those prostrated from long-continued suppuration. Noble of Philadelphia says that in this class of cases this procedure gives in his hands a mortality of 2% as contrasted with one of 25% or more by abdominal section. There is no question concerning the positive merits of the drainage operation; it is done quickly, does not cause shock to the already weakened patient, and permits her to recover from the critical condition in which she is placed by the large abscess. I doubt not we are all ready to subscribe to this.

Polk and Pryor of New York and Henrotin of Chicago have been bold enough to insist that the formation of pus in the adnexa in cases of acute gonorrheal endometritis should be anticipated by vaginal incision and drainage. They all report favorable results in cases so treated. The rationale of the treatment consists in draining away the infected secretions and so depriving the diplococci of culture medium. My own experience with two such cases has led me to believe that playing with fire under such circumstances is rather dangerous

¹ Read by invitation at the regular monthly meeting of the Boston Obstetrical Society, Nov. 18, 1902.

business, and I prefer to wait until the disease has become self-limited and then repair the damage rather than run the risk of mixed infection and peritonitis through the traumatism produced by the operation. Vaginal incision and drainage has by universal consent or approval taken the place of vaginal puncture.

One point in the technique I wish to emphasize, and that is that the incision through the vaginal tissue should be sufficiently free in its extent to afford opportunity for careful investigation with the finger and ensure a sufficiently patulous opening during the succeeding drainage period. The uterosacral ligaments are such important structures in retaining the uterus in its normal position that I am careful not to interfere with their structure, and after entrance through the peritoneum into Douglas' pouch prefer to dilate and stretch rather than to cut.

In cancer of the uterus, provided the case is operable, it seems to me we have a positive indication for the vaginal method, namely, vaginal hysterectomy. I know this is still under discussion and there are some operators who advocate the ligation of the internal iliacs and the radical pursuit of glands. My personal belief, however, is that any cancer of the uterus that cannot give a fair prospect of cure by vaginal hysterectomy had better be left alone — the radical abdominal operation being attended with too great mortality to justify its use.

Coming now to the anterior incision, the condition in which I first applied it was that of retroversion of the uterus, and perhaps it may be well to speak of that first. I am a great believer in the principle that the uterus is supported exclusively by its ligaments, that when a uterus remains in normal position it is because its ligaments retain it there, and when a uterus gets out of its normal position it is because the ligaments have failed to do their duty. This is indisputably the case in unmarried women who suffer from procidentia. In cases, therefore, of displacement of the uterus, the ligaments and the ligaments alone are the proper tissue to utilize in restoring and maintaining the uterus in its normal position. The success attained by the Alexander operation of shortening the round ligaments at the external ring, and by the Wylie-Mann operation of shortening the round ligaments intraperitoneally, led me to utilize the round ligaments for this purpose, and my plan of procedure consists simply in shortening the round ligaments inside of the pelvis; but I do it through the vaginal incision instead of the abdominal.

The technique is as follows: After entering the peritoneal cavity, the uterus is dragged down firmly by traction forceps and the finger passed over the fundus and slipped along until it hooks over the broad ligament near the cornu. The round ligament near to its origin from the uterus is then seized between the index finger, which is on the posterior face of the broad ligament, and the thumb, which is anterior. The cervix is now pushed back into the posterior fornix and the traction forceps removed, the cornu of the uterus in the meantime being dragged forward and downward into the vagina. The bladder and vagina are pushed up by a retractor or the index finger of the other

hand, and by a little persistent effort the entire uterus is delivered into the vagina. The round ligament, first of one side, then of the other, is caught by an artery clamp from one to two and a half inches from the horn of the uterus and dragged down in the form of the letter U. A fine, twisted silk ligature is now passed through the ligament at as remote a point from the forceps on the outer side as will allow of approximation when it is continued through the ligament near the horn of the uterus. It is then tied, thus shortening the round ligament to an extent equal to the length of tissue taken up in the loop. The two arms of the loop between this suture and the forceps are then stitched together by two sutures of silk, and finally a third one catches the tip of the loop and attaches it to the anterior face of the uterus just at the origin of the round ligament. This latter suture is simply for the purpose of disposing of the loop of tissue, although it doubtless affords an additional support. The horn of the uterus thus treated is allowed to resume its position in the pelvis. The other horn of the uterus is drawn down and the round ligament of that side treated as in the first instance. The uterus is then allowed to take its normal position of anteversion, and the bladder tissue is adjusted to its original position. Two catgut sutures sew up the transverse incision in front of the cervix, and the running catgut suture restores the vagina along the longitudinal incision. The vagina is then packed with gauze and the operation is completed.

Cases of retroversion complicated by adhesions, either of the uterus or of the appendages, are made to conform to this technique after the adhesions have been broken up by the finger. Where the adhesions extend to the bottom of Douglas' pouch and are difficult of access, a posterior vaginal incision is made, and through this the separation of the adhesions is completed.

It is my custom always in these cases, after delivering the uterus into the vagina, to bring down the appendages also, first one side and then the other, and do such conservative work upon them as may be indicated. This work consists of such procedures as puncturing with a Pacquelin cautery multiple cysts of the ovaries, in some cases resecting portions of the ovaries, at the same time freeing the Fallopian tubes from adhesions, opening up the fimbriated ends, and under a stream of normal saline solution massaging the tubes, squeezing out any retained secretions, probing the tubes to discover their patency or obstruction, and, when necessary, amputating them at a point that will afford a patulous tube from there on to the uterus.

My work in this department of conservation of tissue and function of the ovaries and tubes in connection with shortening the round ligaments has been most satisfactory. In cases of pyosalpinx where the tube is hopelessly destroyed, the greatest facility is afforded for dissecting out the tube from the horn of the uterus and closing its bed with sutures. My cases illustrate all forms of complications from the simple removing of diseased appendages through the whole range of conservative procedures to the removal of the products of conception in ectopic pregnancy, dermoid cysts and myomectomy for small fibroids.

Anterior colpotomy is used by different operators for accomplishing the relief of displacements in various ways. Dührsen and Wertheim shortened the round ligaments sometimes by doubling them upon themselves, as I have described, and sometimes by fastening a loop of the round ligament to the vaginal incision. The latter method is advocated especially by Vineberg of New York. In certain instances the uterus is attached to the vaginal wall by the method known as vaginal fixation. The dangers of this last method, I think, have been greatly exaggerated, and the unfortunate consequences that have followed in the cases reported have undoubtedly been due to an extreme anteversion of the uterus. Judgment must be used in determining the point upon the anterior uterine wall at which the vagina is attached. I frequently put a sustaining suture through the anterior uterine wall, attaching it to the vagina in cases in which I find undeveloped round ligaments or in which the inflammatory deposit at the base of the broad ligaments tends to hold the cervix forward in the pelvis.

In this connection I might refer to the comparatively new procedure of shortening the uterosacral ligaments for the relief of retroversion. Dr. Bovée of Washington has resorted to this in a greater number of cases perhaps than any other operator, sometimes reaching the ligaments through an abdominal incision and sometimes through a posterior vaginal section. I have used it in connection with shortening of the round ligaments in three cases and found it a feasible procedure in cases in which the vagina is relaxed and the cervix low in the pelvis. I reach the ligaments through the posterior vaginal incision and shorten them by doubling them on themselves as I do the round ligaments. My conviction is that the uterosacral ligaments are a most important factor in retaining the uterus in its normal position. They are, indeed, the all-important factor. Whether they are shortened and made to perform their normal functional support by direct operation upon them or whether the indirect result of some other operation enables them to involute and recover their tone and sustaining power, certain it is that unless they come to the aid of the other ligaments and hold the cervix high in the hollow of the sacrum, sooner or later the condition of displacement will be reproduced.

Speaking from my own experience, although, like most of us, I have had more or less experience with all the operations that have been suggested for the relief of displacements, I have not found one that has given me such universal satisfaction as shortening of the round ligaments through the vaginal incision. At the last meeting of the American Gynecological Society I reported 180 cases that I have submitted to his procedure during the past six years. This number has increased to nearly 150 at the present time. So far as my knowledge goes, I know of but three failures in this series of cases, and these were due to some departure from the regular procedure in which a modification was attempted. Among the 180 cases ten are known to have become pregnant and eight have gone to full term, pregnancy proceeding most comfortably and satisfactorily, and the uterus retaining its proper position thereafter. Of the miscarriages one was in a syphilitic negress, and in the other the cause could not be learned.

In my experience the most frequent cause of retro-displacement of the uterus is suppurative disease of the appendages, involving from 75 to 80% of all cases coming under my observation requiring surgical interference for this affection.

The Alexander operation, pure and simple, is applicable, therefore, to an extremely limited number of cases; it becomes necessary therefore, in order to treat the remaining cases satisfactorily and effectively to open into the peritoneal cavity, and the question is, Shall it be done through the abdomen or shall it be done per vaginam? The advantages of the vaginal operation are that the healing process goes on unconsciously to the patient, without any more constitutional or local disturbance than that which attends a simple trachelorrhaphy. The patient is not mindful of having had an incision made, nor does she bear upon her person any trace of a surgical operation. There are no adhesive plasters to be applied, no stitches to be removed, no bandage or supporter to be worn; there is no ugly scar, and there is no danger of a future hernia.

With these considerations in mind, the idea suggests itself that this procedure has its most appropriate application in cases of congenital or acquired retro-displacement in unmarried women. Among my cases I have six of congenital retroversion or flexion in unmarried women, whose ages ranged from nineteen to twenty-seven years. In these cases, although the vagina was small and the hymen intact in all of them I was able to perform this operation, and effected a cure in all.

The condition in cases of congenital displacement is rather peculiar. In them the uterovesical ligament is shortened, the uterosacral ligaments are lengthened, and the cervix is drawn forward into the axis of the vagina. The anterior vaginal wall, too, is attached low down on the anterior lip of the cervix, thus drawing down the short arm of the lever and throwing the long arm or fundus back into the hollow of the sacrum. The operation through the anterior fornix necessarily severs the uterovesical ligament at its attachment to the cervix and sets the latter free so that it swings back into the hollow of the sacrum and allows the fundus to come to the front. In these cases in closing the vaginal incision after the round ligaments have been shortened, the attachment of the anterior vaginal wall is carried up on the anterior face of the uterus. This brings the pull of the uterovesical ligaments on the long arm of the lever or the fundus. The application of this principle has been made use of by Dr. Reynolds of Boston most satisfactorily in the treatment of these cases. Congenital cases of retro-displacement are notoriously difficult to cure, but with these combined procedures my results have been uniformly successful, all the cases now being under observation, two of them for four years, one for three and a half years, one for three years, one for one and a half years and one for one year. These women bear no mark upon their persons of having been submitted to an operation.

Myomectomy.—The trend of gynecological work in all its departments for the past ten years has been strongly toward conservatism, seeking not only to preserve anatomical structures but also to conserve physiological function. This has nowhere

been more conspicuous than in the application of myomectomy in preference to hysterectomy in the treatment of fibroid tumors of the uterus, and the further it is extended the more numerous become the cases in which it is apparent that myomectomy can be applied and the uterus preserved.

Dr. McCosh of New York has perhaps carried the application of this principle to a greater extent than any other operator of which I know. In a paper presented before the American Surgical Association at Albany last June he reported a most interesting series of cases in which he removed from one tumor in one case to thirty-six tumors in another one, and yet a very presentable organ was left. He advocates a careful search for even the smallest tumors, and in their removal goes to the extreme of bisecting the uterus antero-posteriorly from the fundus down to the internal os, later restoring the uterus to as nearly a normal condition as possible. "It is often gratifying," he says, "when the uterus has been dropped into the pelvis to observe what a well-contracted and comparatively shapely organ has been constructed out of what fifteen minutes previously had appeared to be a more or less ungainly mass of ill-treated uterine tissue." Even after most radical work of this character, he reports three cases out of a total of thirty-one in which pregnancy ensued and went on to a successful issue. He advocates taking these tumors out by either route, as the case may indicate, sometimes per vaginam and sometimes per abdomen. It has been demonstrated that when tumors are small they can be reached through the vagina, and the advantages of this route of attack secured in their removal. The bed of the tumor requires careful and delicate treatment to avoid hemorrhage and, in my experience, the anterior vaginal incision in selected cases offers these advantages to a most satisfactory degree. In three instances I have removed fibroid tumors in this way. In one the tumor was situated on the posterior wall of the uterus just above the internal os, and was a mural fibroid. This was associated with retro-displacement of the uterus, and the patient suffered from all the symptoms attendant upon both conditions, as well as from adhesions to the rectum, from the lower end of the tumor along the posterior wall of the uterus to the top of the fundus. The steps of the operation were as follows: After curetting the uterus and packing it with gauze, the posterior vaginal incision was made, opening into Douglas' cul-de-sac. Through this opening adhesions were broken up by digital manipulation as far as could be reached, but the tumor could not be made to appear with sufficient clearness and facility of approach to justify its removal. The anterior incision was then made. Through this opening the balance of the adhesions were broken up, and by combined manipulation the uterus was delivered into the vagina. With the fundus at the vulva, and in full view of a class of students, the tumor was shelled out and its bed closed with tier sutures of chromicized catgut, Lambert sutures closing the peritoneum. The round ligaments were then shortened through the same incision, the uterus restored to the pelvic cavity, the bladder adjusted to its normal position, and the vaginal wound closed. A strip of iodoform gauze was passed into Douglas' cul-de-sac for drainage and the vagina lightly packed with

gauze. Convalescence was smooth. The operation was done in October, 1899, and the patient has since been free from all the symptoms of which she previously complained, she menstruates normally and considers herself perfectly well.

The second case was submitted to operation in December, 1899, and was that of a woman aged forty-three, married twenty years, mother of four children, the youngest being eight years of age. The patient complained of having endured wretched health since the birth of her last child, her condition growing steadily worse. She was anemic, weak, thin, nervous, and complained of insomnia. The menstrual flow was excessive; backache and leucorrhea were constant. Examination disclosed the fact that she had an extensive laceration of the perineum, bilateral laceration of the cervix, with diseased glands and hypertrophied tissue. The uterus was retroverted and immovable, being wedged in place by a number of fibroid developments on the posterior wall and at either side. At the operation the uterus was curetted and packed with gauze. Trachelorrhaphy was performed, the anterior lip being completely rimmed out. Through the anterior vaginal incision, by patient, careful and persistent manipulation, the uterus with its fibroids was delivered into the vagina. Two of the growths, which were somewhat larger than a normal ovary, were subperitoneal and partially pedunculated. These were readily pinched off, and smaller neoplasms to the number of five, making seven in all, were dissected out of the uterine wall. The round ligaments were then shortened through the anterior incision, and the operation was completed as in the former case, after which the floor of the pelvis was repaired. The patient's temperature remained normal throughout her convalescence, and on the nineteenth day after the operation she left the sanitarium for her home, two hundred miles from New York. She has continued to regain her health and strength, and has been relieved of all her symptoms. I saw her last June.

The third case was an unmarried woman of twenty-seven, and was submitted to operation in May, 1900. She gave a history of having been a sufferer all her life from dysmenorrhea, backache and an uncomfortable sensation in the pelvis. Examination revealed a large, retroverted, adherent uterus, with a small fibroid in the anterior wall just above the neck and between the uterus and the bladder. In this case the anterior vaginal incision was made, but the tumor was too large to permit of delivering the fundus; however, by lifting the bladder strongly on a retractor and drawing out the uterus with volsellum forceps, the tumor was brought into full view and two smaller tumors were revealed, one at the side and the other a little higher on the anterior wall. The three were removed in the usual way and the uterine wounds closed. The fundus was then delivered into the vagina and the round ligaments were shortened to relieve the displacement. There were no untoward symptoms in the patient's convalescence, and she has been relieved of all her unpleasant symptoms.

Of course uterine polypi can as a rule be removed *per vias naturales*, but even in cases in which the tumor is large and requires morcellation for its removal the work can be greatly facilitated by

performing anterior vaginal incisions, thus carrying the bladder high in the pelvis and making room for manipulation. There is no objection under these circumstances to splitting up the anterior uterine wall as far as may be necessary to reach the seat of the growth. After removal the uterus contracts down and can be easily restored to its normal condition. It has been found that the danger of infection from the interior of the uterus, which was formerly thought to be very great in these cases, is of no great importance, except in cases of sloughing polypi. In a myomectomy recently, in which a large tumor was removed from the fundus uteri by abdominal section, I broke through into the uterine cavity and, finding the mucous membrane extensively degenerated, I curetted the uterus through the opening in the fundus, swabbed it out well, and then carried some gauze down through the cervix into the vagina. There was no infection following the procedure, the patient making one of the most afebrile convalescences that I have ever seen. Dr. McCosh made cultures of scrapings from the uterine cavity in a number of his cases, but in only one instance did he get any growth, and even that was thought to be an accidental contamination.

Martin of Germany is strongly in favor of the vaginal route in dealing with fibroids of the uterus. He insists that the size of the tumor is not in itself a contraindication, since growths of large size can readily be removed per vaginam by morcellation. On the other hand, in the presence of firm suprapelvic adhesions, especially intestinal, the abdominal route is preferable; but deep pelvic adhesions and intraligamentary tumors are best handled from below. The writer fears injuries to the bladder and ureter more than he does hemorrhage, especially the former. He has never injured the ureters during vaginal myomectomy, though this accident has frequently occurred in his abdominal operations. When it is possible he enucleates tumors without removing the uterus. In young women he tries to leave one ovary. During three years he has performed 87 vaginal and 31 abdominal myomectomies. The latter were all complicated, and 6 terminated fatally. Of the vaginal operations 35 were total hysterectomies, with no deaths, and 52 were enucleations, with 2 deaths.

The possibility of dealing with small tumors per vaginam seems to me to change radically the viewpoint in cases of fibroid tumor. Between the waiting policy of those who take the position that an unmarried woman suffering from a fibroid tumor, however insignificant, should not be permitted to marry, but that nothing should be done looking to its removal, unless after months or years of waiting and watching the tumor shows signs of growth—between this position, I say, and the attitude of those of the radical wing of the profession who insist that in all cases of fibroid tumor of the uterus nothing suffices but prompt and sweeping hysterectomy, we have now a middle ground, which seems to me a golden mean, in which we can say to a woman suffering from a fibroid tumor, "Have it removed at once." This will not only relieve her present and anticipated troubles, but it will also set her mind at rest. If a tumor or tumors be small, they can be removed per vaginam with the least possible traumatism, danger or discomfort.

If the tumors are too large to permit of this procedure, they are amenable to myomectomy by the abdominal incision, radical work of hysterectomy being confined to an extremely limited number of cases, and those usually in women at or beyond the menopause.

Sterility.—At the recent meeting of the American Medical Association at Saratoga, I presented a paper on vaginal section for the relief of sterility, and christened my paper, "Is It Justifiable to Enter the Peritoneal Cavity under These Circumstances?" In this paper I took the position that in cases in which the husband had been eliminated as the cause of sterility, the causal factor can be located either in the easily approached condition of ante flexion and endometritis, or in some occluding pathological condition that prevents the progress of the ovum from the ovary to the uterus. In many instances the latter condition is caused by the most trivial mechanical interference, such as cobweb adhesions surrounding the ovary, or restraining the fimbriae and binding the tubes in tortuous and constricted positions. These conditions are in many instances the result of remote infection from a chronic endometritis, and are frequently impalpable by abdominal manipulation. I therefore deem it entirely justifiable in cases of sterility, after dilating the cervix and curetting the uterus, to open into the pelvis through the anterior vaginal fornix as an exploratory procedure, dealing with the appendages according to the conditions found. In that paper I reported four cases, three of primary sterility and one acquired. In all of these cases the operation was performed primarily and solely for the purpose of relieving sterility. In one case I found enlarged and cystic ovaries with a sclerotic condition of the ovarian envelope. In the second case there was present such a condition of degeneration of the ovary and tube of one side as to indicate their removal, which was done. Upon the other side a cobweb mesh of adhesions enveloped the appendages, and an advanced cystic degeneration of the ovarian follicles was present. A section of the ovary was therefore done, the wound being closed with fine silk, and small cysts to the number of six were punctured with the Paquelin cautery. In the third case cobweb adhesions surrounded the adnexa, the tubes being kinked and constricted. In this case the adhesions were broken up, the ovaries and tubes were both washed with saline solution, the tubes being massaged and probed to ensure their patency. In the fourth case similar procedures were instituted, the round ligaments being shortened and the cervix and perineum being repaired. Three of these four cases became pregnant, and were in due time delivered of healthy children. Of course this work could have been done through the abdominal incision, but from the standpoint of the patient, the simplicity of the operation per vaginam and its freedom from danger indicate that the vaginal route is the more desirable for the treatment of these conditions.

Cystocele.—The latest application of anterior vaginal incision is in the relief of cystocele. Probably as much time and ingenuity has been expended in the effort to relieve prolapse of the anterior vaginal wall and bladder as in any one gynecologic operation. Of all those that have been suggested not one is

recognized to-day as effecting a permanent cure. The reason doubtless lies in the fact that the principle invoked in all these operations has been that of support from below rather than suspension from above. Dr. Reynolds of Boston in a paper presented at the last meeting of the American Gynecological Society² emphasized strongly the principle of suspension in treating these cases, and described a method by which he endeavored to secure some support from the broad ligaments, but the denudation was simply in the vagina mucous membrane, and the amount of support obtained from the broad ligaments by this procedure is extremely questionable. It occurred to me that if the bladder, after being separated not only from the vagina but also from the uterus, as in my method of vaginal section, could be rotated upon its transverse axis and if a point sufficiently low upon its inferior wall could be carried high upon the broad ligament and anterior face of the uterus, all of the slack in the base of the bladder could be taken in, the uterus and its ligaments, both the broad and the round, would afford sustaining power, and the stretched and weakened vaginal wall could be excised to fit the new condition. Acting upon this suggestion, I have recently put it into practice and with a result that gives promise of proving permanent and entirely satisfactory. After the bladder had been stitched up, as just described, the flaps of vagina on either side of the longitudinal incision were cut away to the extent of an inch, and the gap closed by a running suture of chromicized catgut. The condition of the patient previous to operation was that of extreme procidentia of the bladder, the sound after passing into the urethra immediately turning out through the vulva to reach the bottom of the pouch. In this case there was also retroversion of the uterus. Previous to attaching the bladder to the broad ligaments, the round ligaments were shortened, thus affording sufficient support for the new duties impressed upon them. Examination of this patient two months after operation reveals the uterus in perfect position, the anterior vaginal wall straight and firm and the function of the bladder perfect.

I have not gone into the minute details of all these various procedures, nor have I burdened you with long reports of individual cases, my effort being simply to present, as it were, a bird's-eye view of the possibilities of pelvic work along the vaginal route.

On general principles I believe all of us are ready to subscribe to the dictum that so far as the patient is concerned any operation that can be as well done through the vagina as through the abdominal incision is better done along the vaginal route. The possibilities of this work will undoubtedly vary with individual experience, but the more experience I have, the broader becomes the field of application, until it seems to me that any pathological condition that is confined to the true pelvis can be dealt with as satisfactorily, with as perma-

nent results and with far greater safety to the patient through the vaginal incision than through the abdominal incision. My cases have embraced every variety of disease from simple retroversion with adhesions to prolapsed and cystic ovaries, unilateral and bilateral salpingitis, ectopic gestation, fibroid tumors of the uterus and dermoid cysts. The method lends itself to every form of conservative work upon the uterus and its appendages that has been suggested in the trend of recent modern gynecology. The successful application of it requires patience, experience and skill, but when once the profession has been convinced of its superiority I believe it will steadily and rapidly grow in favor and become the accepted method for the man who practices the specialty of gynecology. It is hardly to be expected that the general surgeon will perfect himself in the technique of this line of work, but there is every reason why the gynecologist should, and it is my growing conviction that the distinguishing characteristic of the future gynecologist will be that he does his work through the vagina while the general surgeon does his pelvic work as a rule through the abdominal incision.

A CASE OF ACUTE PANCREATITIS, AND NECROSIS OF FAT TISSUE; LAPAROTOMY; DRAINAGE; DEATH NINE DAYS AFTER THE OPERATION; AUTOPSY.

BY GEORGE H. MONKS, M.D., AND DAVID D. SCANNELL, M.D.,
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IN view of the widespread endeavors to determine the signs and symptoms by which acute hemorrhagic pancreatitis may be recognized, the report of the following case seems justified by the information it offers.

REPORT OF THE CASE.

E. Q., female, aged forty, married, entered the Boston City Hospital on the evening of Oct. 4, 1901, and was assigned to the service of Dr. Monks. She stated that she had had two attacks of a similar nature to the present one, three and five years before, respectively. On both of these occasions the essential symptoms were nausea and vomiting (persistent for two days in each instance), epigastric and right hypochondriac pain (dull and constant in character, and not radiating), chills, fever and constipation. There had been, so she said, no jaundice and nothing unusual in urine or dejecta. There were no symptoms suggesting collapse. These attacks were not severe enough to keep the patient in bed more than four or five days. Before, between and since these attacks the general health of the patient had been excellent. No history of alcohol.

Present illness.—Sixty hours before entrance, a gradual onset of increasing pain in epigastrium and both hypochondria, distinctly more marked on the left. This pain was of a dull, boring, non-radiating character, with frequent brief exacerbations, but not agonizing. Coincidentally with it were severe attacks of nausea and vomiting. No chills, fever or jaundice. For the previous three weeks the bowels had been more than usually constipated. During the twenty-four hours following the begin-

²"There are two anatomic points which seem to me to underlie success in the operation for cystocele. . . . We should utilize the natural supports of the anterior vaginal wall instead of simply denuding and gathering together the overstretched portions. Second, that we should not only avoid using any part of the overstretched portion of the wall but should actually excise and do away with it, both of which objects should be attained without the performance of an unnecessarily extensive or severe operation."

ning of the attack, the vomiting was persistent. It was not bilious. Increasing exhaustion, but apparently no sudden collapse. During the past thirty hours constant nausea, but no vomiting. Abdomen became somewhat distended and slightly tender, especially in the epigastrium.

Physical examination (at time of entrance). — Patient well-developed, obese. Temperature 100.2°. Pulse 120, of poor volume and tension. Respiration 36, shallow. Facial expression anxious; marked pallor (almost waxy); cold sweat on forehead. Pupils normal. Lips dry; tongue coated; breath foul.

Heart. — Area of cardiac dullness normal. Sounds regular, but weak. Soft systolic murmur at apex transmitted to axilla.

Lungs. — Left side negative. Right side, pleuritic friction in axillary line from fourth rib downwards.

Abdomen. — General distention, slightly more marked in upper half. Occasional visible peristalsis to right of median line. Muscular spasm marked, especially in upper half of abdomen; general tenderness, especially in epigastric and hypochondriac regions. The distention, spasm and tenderness render palpation unsatisfactory. Abdomen is generally tympanitic, except in flanks, where there is marked dullness, not changing with position. No fluid wave can be made out.

Extremities cold up to elbows and knees respectively. No edema. Patient vomits repeatedly during examination; the vomitus is fluid and sour-smelling; no blood or feces. Death seems imminent.

Entrance treatment. — A high turpentine enema is given without result and without diminution in distention. General stimulating treatment.

Urinary examination. — Color, slightly turbid. Odor, normal. Reaction, acid. Albumen, slight trace. No sugar. Sediment shows considerable pus, free and in clumps; no renal or bladder elements. No test for sulphates.

Blood examination. — Reds, 3,900,000; whites, 12,500; hemoglobin, 65%.

Oct. 6 (second day after entrance). General condition unchanged. There is still considerable nausea and vomiting, and no satisfactory results are obtained from repeated high enemata. No fatty stools. The waves of peristalsis are distinctly more marked. The pulse is of poorer quality than at time of entrance. Urine unchanged.

Oct. 10 (sixth day after entrance). Distinct improvement in patient's general condition. Pulse maintains an average of 120, with better volume and tension. Extremities warm. Vomiting much less frequent. During past two days good results have been obtained from enemata, without resulting, however, in any diminution of abdominal distention or spasm. Tender areas on abdomen unchanged. Dullness still present in flanks, not changing with position. No chills. No jaundice. Urine averages daily 20 to 25 oz. Chest negative. (Patient and relatives refuse permission for operation, even in case of improvement.)

Oct. 14 (tenth day after entrance). For past two days there has been no nausea or vomiting. Temperature normal and pulse improved. General condition of patient distinctly better. Normal de-

jecta without enemata. For first time since entrance, distention markedly diminished. Practically no spasm. *A distinct mass in the left anterior lumbar region* can now be felt. This mass, which is palpable bi-manually, is tender, ill-defined, firm and immovable. It is dull on percussion. There is moderate spasm of the abdominal muscles directly over it. It is suggestive of hydro- or pyonephrosis, or perinephritic abscess. No epigastric tenderness. During past three days there has been marked increase in the daily amount of urine, as it now averages 50 oz.; no sugar.

Oct. 21 (seventeenth day after entrance). The systemic condition of the patient is progressively better. The pulse and temperature, however, show marked irregularities. No nausea or vomiting. Free, normal catharsis. Abdominal condition remains about the same. The mass in the left anterior lumbar region is more palpable, especially bi-manually. It occupies, anatomically, the position of left kidney. It is still tender, but only on deep palpation. Indefinite fluctuation can now be made out. The abdomen elsewhere is negative. Daily amount of urine now averages about 55 oz. There is no sugar. Sediment shows considerable pus, free and in clumps, a small amount of abnormal blood, and a few caudate cells, resembling those from pelvis of kidney. No casts.

Oct. 25 (twenty-first day after entrance). Irregular and frequent chills. Temperature shows tendency to fairly wide daily variations; pulse tending upward. General condition still good. Abdomen same as at last note. Urine unchanged in amount and character.

Oct. 28 (twenty-fourth day after entrance). Nausea and vomiting have again appeared. Abdominal distention has slightly increased, and the daily amount of urine has diminished to 35 oz. General condition of patient fairly good. (Permission for operation has at last been obtained.)

Operation (Dr. Monks). — Under ether, an incision four inches long is made in the left loin down to the region of the kidney. Before that organ is reached, however, there escapes from the wound a considerable quantity of greenish-black fluid with masses of soft, friable material (diagnosed pathologically as "necrotic fat"). A large amount of this necrotic material is "scooped out," exposing the kidney itself. No normal perirenal fat is to be seen. The kidney is irregularly resistant, and the capsule much reddened. There is no evidence of dilatation of pelvis or kidney. The ureter is apparently normal. No suppuration.

Although the operative manipulation has been rapid, the patient suddenly collapses. Iodoform wicks are quickly inserted, and a dry sterile dressing applied. The patient is taken from the operating table almost pulseless. Duration of anesthesia, thirty minutes.

Oct. 29 (twenty-fifth day after entrance, and first day after operation). Post-operative recovery from shock fairly prompt and satisfactory. The patient is distinctly more comfortable than just before operation. Some general spasm in epigastric and hypochondriac regions. No abdominal distention. Inspection of operative wound shows considerable discharge, made up largely of greenish-black material similar to that removed at operation. It is

mixed with more or less blood. No pus. The wicks are removed and fresh ones introduced. Apparently there has been no digestion of the walls of wound. Rectal feeding is instituted on account of persistent nausea and vomiting, and inability to retain any food taken by mouth.

Oct. 31. Patient shows a distinct improvement in most respects. Fluids in small amounts are tolerated by stomach. Abdominal condition unchanged. The discharge from the wound is profuse, purulent, slightly sanguinolent, odorless. It apparently contains considerable necrotic fat.

Nov. 2. Absolute incontinence of urine and feces has developed in last two days. Abdomen moderately distended and universally tender. No marked spasm. General appearance of patient resembles that noted at entrance. Condition of wound and character and amount of discharge unchanged.

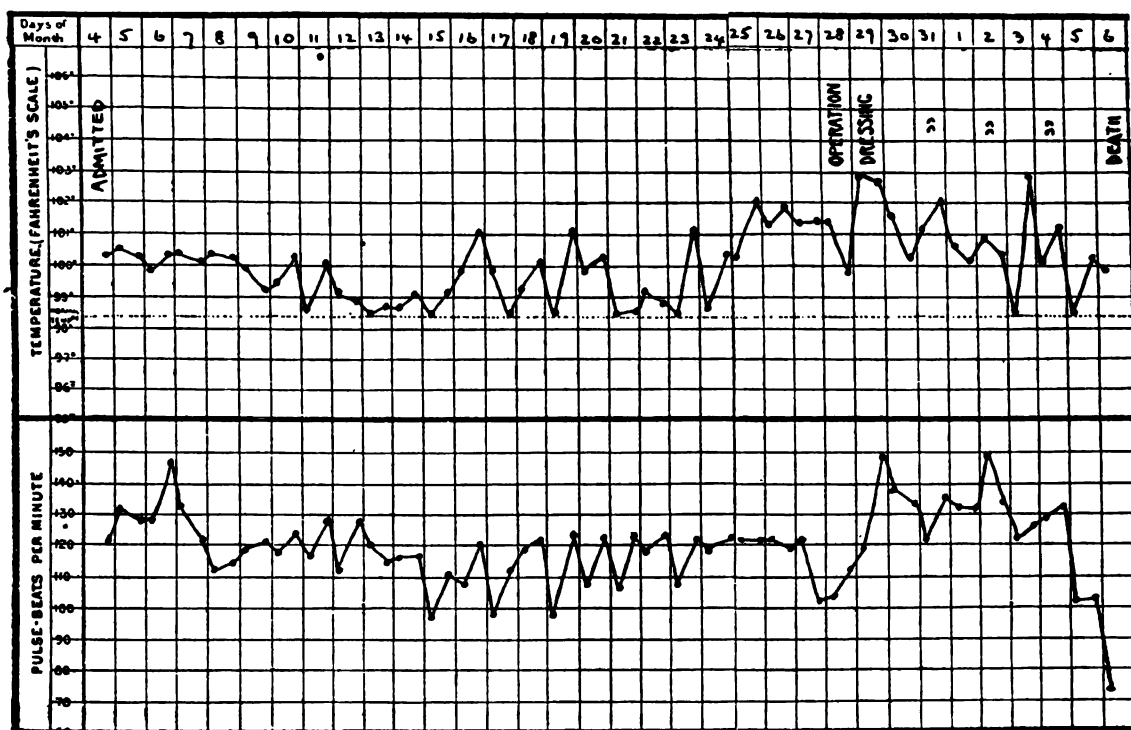
and connecting with retroperitoneal (perinephric) space. Moderate edema of ankles.

Peritoneal cavity.—Omentum fatty. Opposite operation wound folds of small intestine are hemorrhagic and glued together by slight exudate. Fat necroses occur as miliary yellowish nodules overlaid by peritoneum, a few on posterior surface of omentum, many on lining of lesser peritoneal cavity, and a group of one dozen or more upon mass of fat overlying adhesions between tip of left lobe of liver and spleen.

Appendix normal. Mesenteric lymph nodes normal.

Pleural cavity.—Moderate slender adhesions over left front. Surface otherwise normal. No increase of fluid. Right cavity effaced by delicate adhesions, sparing only right apex.

Pericardial cavity.—Slight increase of clear fluid.



Nov. 6. Failure has been progressive, and, in last two days, rapid. Retention of nourishment impossible. Almost constant nausea and vomiting. Wound still discharges freely. Patient obviously moribund.

Death occurred on this date (thirty-third day after admission and ninth after operation).

AUTOPSY.

The autopsy was performed on Nov. 7 by Dr. E. E. Southard of the Pathological Department of the hospital, and the records are available through the courtesy of Dr. F. B. Mallory.

Autopsy fourteen hours postmortem.

Well developed, well nourished white female; rigor; lividity. Operation wound in left lumbar region, below and parallel with last rib, 8 cm. in length, with gray-green disintegrated mass flecked with dark hemorrhagic areas, lying at the bottom

Two milk patches, irregular, with an average diameter of two centimeters upon anterior surface of heart. Similar smaller areas slightly elevated at base of aorta. Epicardium otherwise normal. Considerable sub-epicardial fat.

Heart (weight 260 gms.).—Both chambers filled with dark elastic (postmortem) clot; myocardium normal; no intrafibrillar fat in frozen section. Valves normal except mitral, which shows slightly elevated yellowish areas next to free border.

Lungs.—Voluminous, crepitant. Moderately anthracotic throughout. Very slight hypostatic congestion of dependent regions. Bronchi filled with greenish-brown mucus.

Spleen (weight 85 gms.).—Capsule normal. On section surface red, somewhat translucent, very slightly pulpy, with evident trabeculae and Malpighian bodies doubtfully made out.

Gastrointestinal tract.—Mucosa and muscularis normal throughout. Sub-peritoneally, the duo-

denum shows two or three miliary or slightly larger yellowish nodules. Bile papilla patent.

Pancreas.—The region of the pancreas is occupied by a grumous greenish-gray to black mass, in which the only recognizable element consists of fibrous strands, presumably remnants of interlobular pancreatic tissue. The mass is throughout retroperitoneal and has not burst into lesser peritoneal cavity, although rupture is readily brought about by postmortem manipulation. In a few places there are collections of more fluid character. Smears from various regions show no organisms or recognizable cellular elements. The lower portion of the head of the pancreas appears normal. Wirsung's duct can be demonstrated, and contains no stones. This transverse necrotic mass is continuous inferiorly and to the left with similar, perhaps more hemorrhagic material which surrounds the kidney, approaches the bottom of the operative wound and has infiltrated the left retroperitoneal region as far as the left iliac vein and the muscular mass superior to the brim of the pelvis. The surface of lesser peritoneal cavity anterior to necrotic mass shows several slightly raised yellowish nodules from $\frac{1}{4}$ to $\frac{1}{2}$ cm. in diameter, usually several centimeters apart. The relatively normal pancreas at the head shows similar spherules of necrosis. The inferior surface of liver, the superior surface of the mesogaster and the inner surface of the spleen are walled off from the necrotic mass by nothing more than a pale, thin layer of delicate fibrous tissue. The splenic flexure of the colon is not involved in the necrotic process, and only the most posterior portion of its mesentery has been infiltrated.

Liver (weight 1,700 gms.).—Moderately firm and gray-red with hint of yellow, with lighter areas in the reddish mottled field; the centers of pale areas sometimes show slight foramina—the central veins.

Gall bladder.—Pale from thin investment of fibrous tissue. Its ducts are patent, the common duct somewhat dilated. Two mulberry stones of a grayish-yellow color, somewhat smaller than cherries, are found in the gall bladder. No stone or sign of stones in either duct. Bile thick, yellowish green.

Kidneys (weight 365 gms.).—Left kidney: capsule strips with some difficulty, leaving a gray-red surface with red points corresponding to glomeruli. On section the markings can be made out but are indistinct, and the cortex shows a few miliary, irregularly scattered paler areas supporting fat or cloudy swelling. Fresh examination shows very slight intra-epithelial fat. Pelvis smooth, pale, without abnormal contents. Right kidney: Capsule strips readily, markings distinct. Kidney as a whole looks redder than the left. No intra-epithelial fat. Pelvis normal.

Adrenals.—Left adrenal necrosed and unrecognizable. Right adrenal normal. Bladder and genitalia normal.

Aorta.—Shows transverse atheroma above sinuses of Valsalva, and a few narrow, slightly raised yellowish areas down the arch parallel with major axis.

ANATOMICAL DIAGNOSES.

Necrosis of body and chief portion of head of pancreas.

Necrosis of left adrenal.

Necrotic mass in entire left retroperitoneal (perinephric) region, but not involving renal substance. Fat necrosis of the peritoneum.

Hepatic congestion.

Mitral atheroma.

Aortic atheroma.

Chronic pericarditis (milk patches).

Chronic adhesive pleuritis, bilateral.

Operation wound.

Localized peritonitis opposite wound.

Cultures, negative.

MICROSCOPICAL EXAMINATION.

Liver.—A fairly coarse vacuolation of varying diameter but in many cases as broad as a cell-cord, prefers the outer third of the lobule. The epithelium is everywhere granular. The interlobular tissue surrounding certain capillaries, and a few focal areas where the fatty transformation is at its height, show a good many polynuclear leucocytes. In places vacuoles in cells contain hyaline globules.

Lung.—Bronchi well preserved. Peribronchial anthracosis.

Kidney.—Epithelium swollen and granular.

Heart.—Pigment in moderate amount.

Pancreas.—Portion from normal-seeming head of pancreas (v. gross description) shows some fairly normal lobules, between which are comparatively wide reaches of interlobular tissue, into which masses of blood have been effused. In places the connective tissue nuclei remain or may be reinforced by lymphoid nuclei; but elsewhere the interlobular tissue may be represented by granular eosinophilic debris, with linear spaces once occupied by crystals. In one place fat tissue is well preserved.

Spleen.—Trabeculae and Malpighian bodies normal. The chief constituents of the pulp are evenly scattered lymphoid cells and blood globules. Plasma cells are prominent; and almost as many polynuclear leucocytes appear on closer search.

REMARKS.

Attention is especially directed to the following points:

(1) The previous existence of two attacks, presumably due to gall-stones, the connection of which with a subsequent pancreatitis is rendered probable by constantly accumulating evidence.

(2) The extension of the fat necrosis towards the left adrenal and kidney, emphasizing the value of posterior drainage in such cases.

(3) The possible importance of the destruction of the adrenal in producing the fatal issue.

(4) The negative results of bacteriological examination in extensive necrosis of the pancreas and fat tissue.

CEREBRAL SYPHILIS.¹

BY ALBERT E. BROWNIEG, M.D.,

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THAT syphilis may cause severe disturbance of the internal organs is a comparatively modern idea. Most of the earlier writers ascribed the associated nervous symptoms rather to the effects of treatment than to specific organic changes. They devoted their whole attention to describing the external ap-

¹ Read before the Nashua, N. H., Medical Society.

pearances of the disease, though there were some who mention the occurrence of "internal pustules" and of the rising of "syphilitic vapors" to the brain.

Ballonius, in the early part of the seventeenth century, was the first to definitely describe syphilitic gumma of the brain. But postmortem examinations were rare, and so it is not surprising to find that Hunter in 1787 but expressed the prevailing opinion of his time when he taught that the internal organs and especially the brain could not be affected with syphilis.

Schutzemberger, in 1850, published the results of his studies on cerebral syphilis, and directed general attention to this subject, which Virchow and other pathologists soon elaborated with their accumulated data from the postmortem table. So fascinating and prolific did this topic become, that a host of investigators made it their special field, and within the last decades it has been brought from its former obscurity to one of the most clearly recognized and definite of brain affections.

ETIOLOGY.

Why syphilis should attack the central nervous system in some and not in others similarly infected has caused much discussion.

Age, sex, environment and nutrition would seem not to be determining factors in predisposing to special lesions of the nervous system. It used to be thought that the use of mercury tended to inflammation and degeneration of the brain, and that consequently those cases that were vigorously treated with mercurials were more apt to have syphilitic brain disease. This theory was not well borne out by clinical facts and, besides, Kussmaul and others have clearly proved that the degeneration from mercury is of an entirely different anatomical character.

Virchow first called attention to the undoubted fact that the localization of syphilitic lesions in the skin, bones, etc., is often determined by external injuries and accidents. If this is true of the tissues in general, it would seem to afford a reason, why those cases in which the nervous system is subjected to excessive work, worry, shock, or irritation from intoxicants are the ones most likely to have cerebral lesions supervene. For similar reasons, we can understand that persons inheriting a neurotic constitution would thus afford a vulnerable point to the inroads of the poisonous principle, and it is a clinical fact that such persons are particularly liable to have lesions develop in the nervous system comparatively early in the disease.

PATHOLOGY.

To intelligently comprehend the variety but essential unity of the cerebral lesions of syphilis, it must be borne in mind that they are all essentially inflammatory in character. It is generally conceded that syphilis is due to infection with a specific microbe, and the result of its growth in the nervous system, as elsewhere, is a peculiar form of exudative inflammation. The chief seat of its activity is in the walls of the cerebral blood vessels, with consequent arteritis and impairment of nutrition of the brain tissue beyond the lesion. This leads to localized edemas and ischemias, areas of softening and manifold impairment of function.

Associated with this inflammatory reaction there exists a peculiar exudation or infiltration about the affected vessels. These infiltrated areas are apt to be distinctly localized and are called gummata. They sometimes appear as small aneurism-like swellings upon the periphery of the vessels (gummatous periarteritis), but may grow to quite large tumor-like proportions and become broken down in the center. Sometimes, as often at the base of the brain, this exudation may be more diffuse and involve pretty generally the vessels of the meninges of the floor of the cranium, though they are more rarely seen in that over the vertex (gummatous meningitis).

Besides these two very distinctive lesions of syphilis, we commonly have associated therewith a proliferation of the subendothelial lining of the vessels which may seriously encroach upon or even wholly obliterate their lumina. This *obliterative endarteritis* is not peculiar to syphilis, but a very common result of its invasion.

The whole process then is due to the irritating effects of the syphilitic microbe, and the gummata are but secondary products of the inflammation, much as pus is the product of the invasion of the tissues by the ordinary cocci.

Besides these direct and primary lesions of the brain due to syphilis, there are two degenerative diseases chiefly affecting the nerve cells of the brain which are most commonly produced by the remote effects of the syphilitic poison in the blood. They generally come on after the patient has been apparently cured of all syphilitic symptoms and are thought to be produced by the action of ptomaines in the blood rather than to the activity of the microbe itself. They are generally spoken of as the post-syphilitic brain degenerations and include clinically the diseases known as locomotor ataxia and paresis. The scope of this paper, however, will not allow of but a passing reference to these last two important and common brain affections.

SYMPTOMATOLOGY AND COURSE.

There are so many slight variations in the symptoms and their combinations that it is hard to form a mental picture of the disease type merely by mentioning *seriatim* the symptoms that *may* occur. Perhaps it will be better to review in brief a clear case of the affection which came under our care within the last year, and which presented nearly all the classical symptoms in their usual order.

E. W. was born with a silver spoon in his mouth, and early in life was fostered with especial care on account of a neurotic tendency in the family. This spoiling process but tended to increase this natural tendency in the child who, though soon well educated and traveled, became wilful and wayward, and could not deny himself anything that appealed to his appetite or fancy. While a student abroad he formed many *liaisons*, and, 't was whispered, had a wife in England, France and in Germany. Six years ago he met his death by seducing what he supposed to be a vestal virgin from one of the shrines in Japan. From her he contracted syphilis. He took treatment from leading specialists, generally selecting that form proposed that was the easiest. He also took special "postgraduate courses," so to speak, at some of the baths in Germany. All outward

evidences of the affection disappeared, and on the outbreak of the Spanish War he enlisted and went through the hardships of a year's campaign in the Philippines. This evidently acted as an exhausting and hastening factor, for a short time after returning home he was taken with gradually increasing neuralgic pains in his head, especially over the vertex and just above, and in, the eyes. These pains were very persistent and did not react well to treatment. Besides the inability to use his eyes on account of the pain, he found his eyesight rapidly failing, and took to strong glasses, which but partially corrected the defect.

Within a fortnight of the onset of symptoms he grew so bad that his father took him to a sanitarium near Boston. This, however, not proving satisfactory he was removed to a second. While at the latter place, he suddenly had a shock with partial paralysis of the left side and ptosis of the right eyelid. This grew better in a few days and he was sent to the Highland Spring Sanatorium in October, 1901, about one month after the first onset of symptoms.

On entrance he appeared fairly well nourished and presentable, but acted somewhat as if slightly intoxicated. His gait was unsteady, shuffling and at times markedly ataxic. He dragged his left foot more than his right; knee jerks were slightly diminished, ankle clonus not present; the eyes reacted both to light and accommodation, and Romberg's test was negative. There was a marked iodide eruption on the skin, as evidence of recent vigorous treatment. His hand grasp was weaker than normal. He wandered about, taking but little interest in conversation, as if in a brown study, made irrelevant remarks and appeared half asleep. If aroused, however, by vigorous questioning, he would brighten up and show nearly normal intelligence and judgment on nearly any topic, with evidently no serious impairment of memory for the distant past. Of recent events he was not so sure and sometimes entirely at fault. He complained of a nearly constant headache, and realized somewhat the difficulty he experienced in making the finer movements with his hands, as in buttoning his clothes or in writing. He fumbled everything he touched from lack of accurate sensations and coordination rather than from definite tremor of the muscles. His appetite and digestion were good. Occasionally he would suddenly become nauseated and refuse a meal, or vomit what he had eaten without much nausea.

He improved somewhat for a fortnight and then began to show more serious mental defects. He became untidy in his habits, more forgetful and careless, and then so confused as to be definitely deluded. He complained of a peculiar sensation in his head which made him think he was on a steamer at sea, and he would move in his seat on the piazza as if righting himself to the pitch of the vessel and perhaps startle every one present by a question as to how soon would we all reach Liverpool at this rate of speed. Thus a few delusions and hallucinations became perceptible, probably from transitory circulatory disturbances in the brain. They were never very marked and not at all troublesome. His speech all along had grown thick and inaccurate in expression, drawing, with the occasional elision of

several words at the end of a sentence as if he had changed the current of his thoughts and forgot what he was going to say. For days at a time he would be very sleepy and rouse only for food. Again, at other times, he would have abnormal thirst and drink large quantities of water, though it was cool weather. This was likely to be accompanied by marked polyuria.

On Nov. 10 he had another shock which caused complete paralysis and coma. His family physician, brought up in consultation, pronounced it apoplexy and refuted our opinion and said he would not live twenty-four hours, certainly not one week, so complete was the paralysis which involved even the nerves of the forehead. He lay thus for several days, and we had to resort to tube feeding. He gradually grew stronger, although never after was he able to leave his bed except to lie on a reclining chair.

His special attendant had to care for him as for a helpless child, although the paralysis passed away from the right side completely and to a great extent from the left. There still remained on the left more or less spastic rigidity. He developed bilateral bed sores, and in fact every area of pressure soon became broken down and would not heal. He could understand fairly well, but his mind was weak, and gradually he failed to recognize members of his own family, became slowly very much demented, and finally died after an attack of a shock-like character, with depression of the heart, on March 12, 1902, just six months after the onset of symptoms.

At autopsy the brain appeared somewhat softer than normal. The dura and pia were slightly thickened and more opaque over the base and in small patches over the vertex, and the arteries showed some general thickening with sclerotic patches. On section the corpus striatum presented a peculiarly soft, yellowish, degenerated appearance over an area on each side larger than a walnut and corresponding to the area of supply of the middle cerebral artery. Under the microscope the brain tissue in these areas was plainly in process of fatty degeneration with destruction of the medullary sheathes. The walls of the finer vessels were much thickened and the channels in places nearly occluded. Evidently the essential cause of the fatty degeneration was the poor blood supply afforded by the terminals of the middle cerebral artery. No definite gummata were found. The meningitis of the base and vertex probably accounted for the headache and cerebral nerve palsies, while the hemiplegias were probably due to acute congestions or edemas of the brain substance, consequent upon some new occlusion of an arterial branch.

DIAGNOSIS.

The diagnosis of cerebral syphilis often presents very great difficulty from the almost innumerable series of combinations of functional impairment that may be complained of. Indeed, it is not always possible at a first examination, or even on several, to be certain of the localization of the principal lesions on account of the varying blood supply and the rapid changes of the symptom groups. There are no pathognomonic symptoms or group of symp-

toms. Their general course and variety help us just as much as the individual symptoms themselves.

The chief points that help to a suspicion of the disease are :

- (1) Headache and vertigo.
- (2) Nausea and vomiting.
- (3) Optic neuritis.
- (4) Cranial nerve palsies or paralyses.
- (5) Apoplectic attacks, or more gradual attacks of somnolence or coma, with partial hemiplegia.
- (6) Irritability and general mental failure.
- (7) Polyuria and polydipsia.
- (8) Marked remittent character to all the symptoms and their changeability.

The chief danger lies in overlooking a persistent headache, or other single symptom in an otherwise apparently healthy patient until some serious mishap, as hemiplegia or organic change, like optic neuritis, supervenes. Very many of these cases have come from the best practitioners and even specialists, and have been treated for a long time for some defect in the secretion of hydrochloric acid in the stomach, or lack of motility of the small intestine, which has, they think, caused all the headache and nausea and dizziness. The character and grouping of the symptoms, not their mere presence or absence, is an important point. The usual time of onset is about the third year after primary infection, and because more males than females contract syphilis, nervous syphilis occurs seven times more often in men than in women.

As first observed by Lancereux, definite localized brain syphilis may be noticeable by the appearance of headache and facial paralysis and optic neuritis as early as the first month after the primary chancre. In such rare cases, anti-syphilitic treatment is apt to be more successful and the general prognosis far more favorable than in others where the brain symptoms come on in the late stages of the disease. [Since writing the above a subsequent similar case showed marked facial paralysis on both sides only *four days* after the first appearance of the secondary eruptions and before they had become general over the body. In less than three months under the usual rigorous measures, the paralysis and other associated nervous and skin symptoms had disappeared, except a slight remaining weakness in the muscles of the right cheek.] Many cases in the late periods run a similar course to that of true general paralysis, from which it is hard to distinguish them.

PROGNOSIS.

As before stated, those cases occurring early in the course of the general systemic infection offer usually the best chance for recovery, which may be complete or partial, according to the amount of brain tissue destroyed. If there has been hemiplegia, with much cerebral degeneration, some of the results will ever after remain. If the symptoms are arrested when simply caused by pressure from exudation about a nerve or nerve center, nearly complete recovery may be looked for. In the later cases, in which the lesions include a more chronic arterial change and gradually lessening blood supply to the affected area, the results are less encour-

aging, although still more hopeful than for other forms of intracranial new growths. The fatal cases usually live from six months to three years. The duration depends, of course, considerably on the special location of the principal lesions.

TREATMENT.

As a prophylactic against inducing the disease to gain a more certain foothold on the nervous system, it is wise to warn all recently infected syphilitics to "take life easier" than usual, as part of their medical treatment, to avoid alcoholic and other excesses, and especially worry and mental strain. On account of the undoubted danger of cerebral involvement, even in the early "secondary" stages, it is safest to pursue the mixed treatment almost from the start, and even after all external signs of the disease have disappeared, to have the patient take regular doses of iodide of potassium up to the end of the third year. Indeed, special care should be exercised during this third year, as it is then that the majority of the cerebral cases first define themselves.

When undoubted cerebral symptoms occur, it seems the general consensus of the best opinions that iodide of potassium is our chief mainstay, and that to secure any very definite results very large doses have to be administered, even to the utmost limits of their peculiar tolerance to this drug. No definite maximum dosage can be fixed upon. Some have taken as high as 1,500 grains a day, in divided doses, with apparent benefit. Usually considerably smaller doses will suffice, and marked remission of the symptoms and sometimes very remarkable and startlingly rapid recoveries follow. In other cases, as in the one cited above, no apparent hindrance to the disease process can be obtained, and I have often thought that in these the iodide hastened the degeneration by interference with the assimilation of food. The unsuccessful cases belong especially to those occurring some years after the initial lesion.

Clinical Department.

THE IMPORTANCE OF CAREFUL EXAMINATION AND FREQUENT CULTURES IN DOUBTFUL THROAT CASES.

BY W. F. COUES, M.D., BOSTON,

Agent, Board of Health.

THE following case well illustrates the subject of this note: Mr. S. P. D. was seen the evening of Jan. 11, 1902. Three days before he began to feel slight sore throat, not sufficient to keep him from his work. On inquiry it was learned that the patient had seen a little child on Christmas Day who subsequently, about two weeks before I saw my patient, developed diphtheria. Other than this the past history was unimportant.

Examination showed the pharynx uniformly reddened, the tonsils somewhat swollen, and some edema of the uvula; there was no membrane visible. The general condition of the patient was good.

Jan. 12. The appearance of the throat on

superficial inspection was the same, but on tipping up the uvula with a throat stick there was seen on its posterior surface a triangular piece of membrane the size of an almond. A culture was taken and 4,000 units of the State Board antitoxin given, and the patient isolated. A positive report was not obtained until the third culture.

The membrane remained confined to the posterior surface of the uvula. There was very slight constitutional disturbance. The patient was sent later to the Boston City Hospital, and made a good recovery.

The points of interest were these: The membrane was confined entirely to the posterior surface of the uvula. Three cultures were taken before a positive result was obtained.

In closing I cannot do better than to quote a few of the rules laid down by Dr. Fussell¹ in his admirable article on diphtheria.

"(1) Always make a culture in throat cases; diphtheria cannot be diagnosed without it.

"(2) When called to see a case of sore throat which is of doubtful character give antitoxin at once and make the diagnosis by culture afterward.

"(3) Always give a large dose, from 2,000 to 4,000 units in the writer's hands has proved sufficient, but in desperate cases much larger doses may be used, as proved by the Boston experience."

Medical Progress.

REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. SOUTTER, M.D.

[Continued from No. 3, p. 67.]

PARALYSIS.

LE BRETON¹ employs traction rather than tenotomy or myotomy in the contractures of infantile paralysis. But in cerebral paralysis tenotomy and myotomy are of great service in simplifying treatment, and traction is of no service. He performs these operations in clubfoot, clubhand, congenital and acquired torticollis, severe psoas contraction; in Pott's disease, and in long standing hysterical contractions; in pseudo-muscular hypertrophy, in the later stages of the paralysis; in Friedrich's ataxia; and in post-typhoidal contractions.

Arnold² recommends a board apparatus, sliding horizontally, arranged to give horizontal motions, with or without resistance as a means of increasing power of a paralyzed extremity. Useful in cases with very little power.

Stadilman³ reports a case, of six years' duration, with inability to stand or walk, from ataxic paralysis. By special exercises and manipulations the ataxic movements disappeared in three months; the paralysis had decreased, and the child was able to stand and walk.

¹ The Value of Diphtheria Antitoxin, by M. Howard Fussell, Phila. Med. Journ., Oct., 1902.

² New York Med. Journ., lxxvi, No. 7.

³ New York Med. Journ., Aug. 16, 1902.

⁴ Bull. General de Therap., Nov. 28, 1901.

Gibney⁴ reports the history of tendon transplantation as performed at the Hospital for Ruptured and Cripples in New York. The first operation was done July, 1896.

The operations, after treatment, and cases in the hospital are reported: Twenty-four cases of equino-valgus, five of valgus, 19 of equino-varus, 12 of equinus, three of calcaneus, 10 of hemiplegic wrist-drop, five of dangle leg, one of congenital thumb. There are also two long tabulated lists, one containing the details of tendon transplantations, the other, astragalectomies, arthrodesis cases and transplantations. Preparatory treatment should always be begun before the operation.

Hoffa⁵ states that the prognosis in paralytical contractures is better than in congenital. After correction, he uses plaster for many weeks. Apparatus or arthrodesis is used to stiffen the joint, and, better still, tendon transplantation. There is a description of these different methods given in detail. How the new power is induced in the force-giving muscle has not yet been decided.

In⁶ made experiments on cats and dogs with various tendon transplantations. The tendons were later examined histologically. He reports also an examination of one human transplantation a year after operation. In a few weeks after operation, there is a new formation of young tendon bundles. This is delayed by infection, or if there is hemorrhage in the operation. For months the new formation process goes on. Slight over-correction must be maintained a long time after the wound has healed.

From a review of the literature, and from the author's personal experience, Townsend⁷ of New York considers that there are great possibilities in tendon transplantation for the relief of paralytic deformities. From the nature of the cases it is not desirable to lay down rules as to the particular operation for given cases, for each case requires separate consideration. The after treatment is most important, especially in cases affecting the lower extremity. A thorough knowledge of the different kinds of braces is almost essential. Contracted tendons should never be absolutely divided, but they should be lengthened, for they may become useful later.

Vulpinus⁸ in a treatise on severe paralytic conditions, reports the cases of six patients who were unable to walk or stand, and who were treated by apparatus. No specific treatment could be advised for all, as each required apparatus peculiarly adapted to the deformity of the case, and much ingenuity was often required. All were able to walk after treatment.

TENDON TRANSPLANTATION.

Waterman⁹ gives the history of tendon transplantation, sketches the symptomatology and the diagnosis, and gives indications for operation, its technique and results. Although Nicoladoni introduced the operation in 1881, it had been known a century ago.

⁴ New York Ac. Med., May 20, 1902.

⁵ Zeit. f. diät und Phys. Therap., 1902.

⁶ Münch Med. Woch., 1901, 51.

⁷ New York Ac. of Med., May 20, 1902.

⁸ Zeitschrift, 1902.

⁹ Med. News, July 12, 1902.

Waterman recommends stretching the tendons before transplantation to have them in a condition of normal relaxation. It is best to use the button-hole method. Suture should be made with silk or kangaroo tendon.

White¹⁰ reports eleven cases of tendon transplantation, and suggests using massage to strengthen the muscles for some time previous to operation. There is a description of the usual technique of the operation. He notices an increase in the size of the ankle joint in a short time after the transplantation.

Tubby¹¹ reports eleven cases, successfully treated, of calcaneo-valgus. The peroneus longus and the flexor hallucis longus were attached to the tendo-Achillis. He believes this to be a good use of the flexor longus hallucis, as it is of little use to the foot in walking, and the flexor brevis is sufficient to flex the great toe. In cases where the peroneus longus is used alone, Tubby splits it, sutures one half to the side of the Achilles, and passes the other half through the Achilles and sutures there. In three cases of spastic paralysis he strengthened the supinators and flexors of the forearm by transplantation of the flexors, thereby changing the promotor radii tires into a supinator.

Dane¹² makes a plea for early operation in calcaneo-valgus, namely, arthrodesis, instead of apparatus, which is heavy and checks the growth by constriction. Tendon transplantation is recommended for slight cases. The advantages of an early operation are as follows:

- (1) Expensive apparatus for years is avoided.
- (2) Success may be expected, since in early stages the bones are relatively normal in shape and articulation.
- (3) The tissues are in plastic activity in childhood and favorable for operation.
- (4) Lower limb statistics are not as much disturbed by operation as by apparatus.
- (5) The muscles are not compressed by apparatus if the operation is performed and the child exercises more fully.

Objections to early operation, are, — (1) Lack of union. (2) Injury to epiphysis. Neither are probable with the exercise of ordinary care.

Whitman.¹³ In paralytic talipes of calcaneus type the long arch of the foot is noticeable. This is due to the approximation of the anterior and posterior support by retraction of remaining muscles and adaptation and shortening of the other tissues.

(1) Willet's operation, (2) tendon transplantation, (3) arthrodesis, are the three operations worth considering. Willet's operation consists in dividing and shortening the tendo-Achillis sufficiently to hold the foot at right angles.

Tendon transplantation, Nicoladoni's operation, and two lateral peronei are inserted into the Achilles. It is palliative and of least value.

Arthrodesis is intended to establish a right angle ankylosis and to dispense with apparatus. The method recommended by Whitman is the removal of the astragalus, and all the above-mentioned procedures enter into the operation; that is, the opera-

tion of Whitman's might be called astragalectomy, arthrodesis, tendon shortening, tendon transplantation and backward displacement of the foot. The first and last are the most important parts.

ELEVATION OF THE SCAPULA.

Kansch¹⁴ reports five cases of congenital elevation of the scapula, with trapezius defect in three, and only part of the muscle in the other two. Massage, gymnastics, treatment by apparatus and transplantation of the rhomboids were successful.

Lamm¹⁵ reports his own and several other cases of high position of the scapula. Torticollis and resulting kyphosis and scoliosis were present in a few instances.

Joachimsal found thirty-six cases, — two where the deformity was bilateral. No abnormality at birth was noted. In two the arm was turned behind the back. Bollon reports scanty liquor ammoniae in a case, and has noted that children with high scapulæ sleep with arms behind the back. Other coincident congenital defects were found by Roger and Hutchinson; namely, an opening in the cervical and dorsal vertebræ; cartilaginous connection between the scapulæ and vertebræ; enlarged scapulæ, especially laterally congenital herniæ, imperfect pectoral or trapezius muscles, congenital hip, torticollis.

Wachter¹⁶ reports forty-three cases from the literature and adds two of his own of high position of the shoulder-blades. He thinks the cause is congenital malformation and not mechanical. The normal spine of the scapula should be at the level of the third and fourth dorsal spine. Many congenital defects were found with the deformity.

Goldthwait and Painter¹⁷ report two cases of congenital elevation of the scapula. These were operated upon and with improvement. In one case the cause was similar to that of torticollis. The contracted muscles were largely replaced by fibrous tissue. The operation consisted of myotomies with re-attachment of some of the muscles. Recovery was uneventful.

In the second case there was a band attaching the upper angle of the scapula to the vertebra. This was excised. Both cases recovered uneventfully with a very good result as to function.

CARIES OF SCAPULA.

Délaup¹⁸ reports a case of extensive caries and necrosis of the scapula in a man twenty years old. The scapula was excised and the soft parts so attached to the clavicle as to have a useful arm without atrophy and thirty degrees of possible abduction from the side.

COXA VALGA.

Gangolphe¹⁹ describes the deformity of coxa valga with antero-posterior position of the neck, felt clinically, and confirmed the x-ray. The limb was held in the position of abduction and external rotation. Manclan reported cases of this deformity, but with other co-existent deformities, namely, spinal curve.

¹⁴ *Mittelsau Grenzgel Med. and Chir.*, ix, 9-111, and *Central. f. Chir.*, 1902, 22.

¹⁵ *X. Zeitschrift Orth. Dis. Strausbourg*, 1901.

¹⁶ *Discus.*, Strausbourg, 1901.

¹⁷ *Trans. Am. Orth. Assn.*, 1902.

¹⁸ *Orleans Parish Med. Soc.*, June, 1902.

¹⁹ *Rev. Orth.*, July, 1902, 249.

¹⁰ *Brit. Med. Journ.*, 1901, 589.

¹¹ *Brit. Med. Journ.*, 1901, 585.

¹² *Am. Med.*, Aug. 16, 1902, p. 256.

¹³ *Tr. Am. Orth. Assn.*, 1902.

The onset was with fever, and later the deformity developed.

Hofmeister reports a case beginning with a chill, fever and pain in the hip. The patient was kept in bed for ten days, and the pain and other symptoms disappeared.

GROWTH OF BONE.

Morin²⁰ reports on the growth of bone as studied by x-ray pictures. An x-ray picture of an embryo of two months was taken and a series of radiographs made from children at the ages of three years, three and a half, four, six, six and three quarters, and one from a child sixteen years old. The different parts of the skeleton are taken up separately and the changes noted in each at these different periods. Many measurements are given.

Taylor, H. L., reports a growth of bone in forty cases of bone disease of the knee, and concludes as follows:

(1) In first four years the affected leg is longer than the other. In adults and in the young, when the disease has lasted more than seven years, the limb is shorter.

(2) The femur is nearly always longer in the first four years, and the length of the limb is due to this bone.

(3) The tibia may be longer early but generally it is shorter, especially in old cases where the disease has subsided.

(4) In cases where the extremities are of the same length the femur will be found longer and the tibia shorter on the diseased side.

(5) The foot at the end of one year shows a difference in favor of the well side.

(6) The increase of length in the femur is at the expense of the foot and tibia, but at the end of a year all are found behind in growth.

ILIO-PSOAS BURSA.

Lund²¹ makes a report on the ilio-psoas tendon bursa as it occurred in eighteen subjects in the dissecting room. The bursa communicated with the joint by a free opening. Lund suggests this means of draining the joint. The bursa is reached by a vertical incision just below Poupart's, between the anterior crural nerve and the femoral artery.

KNEE JOINT.

H. W. Allingham, F. R. C. S.,²² reports fifty-nine cases of internal derangement of the knee, all operated upon. In these cases there was either locking of the joint or recurring weakness with pain and swelling. The causes as found by operation are summarized as follows:

(1) Semilunar cartilage, internal or external, split, loose, displaced or torn in one or both extremities; or trouble with the coronary ligament.

(2) Loose bodies in the joint.

(3) Torn or hypertrophied alar ligament or hypertrophied fringe of synovial membrane.

(4) Rheumatoid arthritis.

(5) No obvious derangement.

In general, operation is the most satisfactory treatment. Recovery was rapid; failure in a proportion of all serious cases is inevitable. There

was considerable trouble and delay in convalescence owing to profuse synovial secretion and to a tendency to stiffness in the joint.

W. E. Blodgett²³ refers to the auscultation of the knee-joint with a Bowles stethoscope which has a soft rubber cap over diaphragm. During the examination all movements are passive. The knee from extreme extension is flexed, then smoothly extended and flexed several times. The first movement up and down gives the most sounds. Three distinct sounds are heard and many combinations,—(1) snapping, creaking; (2) grating, coarser, rougher and less discrete than the first; (3) a decided squeak. The first and second groups of sounds are similar. The sounds increase with age.

Guentcheff²⁴ considers that a joint mouse is due to trauma and is liable to increase in size. Of the cases analyzed, four sixths were in the knee-joint and one sixth in the elbow; males more often affected than females. The body is of cartilaginous or bony origin. In rare cases fragments of ligaments have been found or sanguineous coagula. Beside foreign bodies, synovial fringes may cause mice in the knee; also they arise frequently from the pathological changes in arthritis deformans.

Lorenz²⁵ states that in ankylosis of the knee with deformity there will be found, after the disease has subsided, contraction of the posterior capsule wall and changes in the ligament. Apparatus usually causes no relief. In some cases Wolf's apparatus does relieve, but it takes too long in the more serious cases. *Redressment forcé* is too dangerous. Absolute bony ankylosis demands operation with incision and correction with the osteoclast. In this way least damage is done to the bones. Serious cases may take two hours or more. Stretching should be gradual and there should be slight over-correction. This procedure is less dangerous than excision.

HOT-AIR TREATMENT OF JOINTS.

Potts²⁶ has seen benefit from the use of hot-air treatment for ankylosed joints.

INSERTION OF METAL FILM TO CURE ANCHYLOSIS.

Puporac²⁷ re-establishes joint function in cases of ankylosis of the elbow by Chlrenisky's method. After separation of the bony parts a piece of metal magnesium was put between the surfaces. The functional result was not very good. Passive motion, electricity and massage were used. Passive motion was extremely painful; while complete motion was not restored, the patient was able to resume her work and was well satisfied.

Keetley²⁸ says that after erosion of a tubercular elbow, he prevented ankylosis by putting a thin gold plate in the joint. After two months it was removed.

HIP DISEASE.

Broca²⁹ has written three articles on hip disease with especial reference to the clinical condition and

²⁰ Rev. Ortho., Paris, July, 1902.

²¹ Boston Med. and Surg. Journ., Sept. 25, 1902.

²² Lancet, London, March, 1902.

²³ Boston Med. and Surg. Journ., cxlvi, 3.

²⁴ Rev. Med. Suisse, 174 et 416, 1901, Nos. 6 et 7.

²⁵ Zeitschrift Ortho., 1902.

²⁶ Therap. Gaz., Detroit, June, 1901.

²⁷ Wien. Klin. Woch., xv, 859, 1902.

²⁸ London, 1901, Brit. Med. Journ., ii, 1657.

²⁹ Rev. Ortho., iii, 4-2-59.

treatment. Non-tubercular hip disease is included. Coxitis is divided into suppurative and non-suppurative, operative and non-operative. His treatment is vigorous but conservative. He does not favor excision, but early drainage is indicated.

Dane³⁰ reports the amount of motion allowed with different hip splints, and points to the value of grasping the pelvis in order to obtain good fixation. In a splint which grasps the thorax with an arm, the jar on the hip is increased.

(1) The Taylor splint with one perineal band and three and one-half pounds of traction, allows 35° to 40° of motion in flexion.

(2) With unbearable traction, 15°.

(3) With three and a half pounds of traction and two perineal bands, 16° to 27°.

(4) The Dane splint with one band, 9° to 11°.

(5) With two bands, 6°.

(6) The Lovett splint allows even less.

Downs³¹ operates early in hip disease, especially when there is abscess. He uses the Doyen instrument, which enables him to remove all the disease in from ten to fifteen minutes. Excision is indicated if the head or neck are extensively diseased and when the epiphyseal line is involved, even if the head and neck are normal. The trochanter should be removed whenever excision of the head and neck is indicated.

La Ginchaqua³² has published sixteen cases of spontaneous dislocation of the hip in acute hip disease.

Archambaud³³ treats hip disease without immobilization. He reports 71 cases treated mechanically, using Hessing's apparatus with an auxiliary crutch.

König³⁴ has written extensively on 758 hip cases, 568 tubercular, 110 acute infectious, 30 gonorrheal, 22 arthritis deformans, 20 miscellaneous. Tubercular hip disease and infectious coxitis are described and compared. The latter is divided into three groups: synovial coxitis, osteo-coxitis and osteo-myelitis. Arthritis deformans of the hip is described as a distinct disease, in a short space.

Lance³⁵ describes juxta coxale disease. In 1,000 cases there were but 38 cases of tuberculosis of the pelvic bones without involvement of the joint. In early cases of abscess, with little or no limp, the coxalgia must have been secondary and the disease due to the pelvic bones. This Lance has often demonstrated by the x-ray.

Jonon³⁶ reports a case of dislocation of the hip in tubercular coxitis reduced successfully eighteen months later.

Lovett³⁷ reports on the value of traction and fixation alone, and decided in favor of traction. Both are often necessary to limit the motion well within what nature allows. For cases with 45° and over of motion in flexion, he recommends the ordinary hip splint; for cases with from 25° to 45° of motion in flexion, the Dane splint; for cases with 20° to 30° and less, the Lovett splint. This splint is for severe cases, and often they will not have to stay in bed when it is used.

³⁰ Trans. Am. Ortho. Assn., 1902.

³¹ Trans. Am. Ortho. Assn., 1902.

³² Paris, J. Bousset et Cie., 1901.

³³ Rev. Ortho., Paris, 1901.

³⁴ Die Specielle Tub. der Knochen und Gelenk, das Huft Gelenk bearbeitet, von König.

³⁵ Rev. Ortho., Paris, 1901, 2 s. II, 441-76.

³⁶ Rev. Ortho., Paris, 1901.

³⁷ Tr. Am. Ortho. Assn., 1902.

Leroux³⁸ has had good success in the marine treatment of tubercular bones and joints.

Taylor³⁹ makes a report on 40,000 cases, 13,000 of tuberculosis, two fifths of the vertebrae, two-fifths hip, one-tenth knee. There is an elaborate treatise with statistics and tables.

Rominceano and Bolintineano of Bucharest report a cinematograph study of the walk in hip disease. The report confirms what we are used to seeing.

CONGENITAL CLUBHAND.

Redard⁴⁰ of Paris performs the operation on club-hand in two parts: First, a subcutaneous section of the ulnar is made; then manual straightening and immobilization by plaster-of-Paris follows. In the second operation he removes the trapezoid fragments of the lower ulnar, and the separate bones are sutured. The hand is easily adducted. Two lines of silver wire keep the fragments in position. The whole is placed in position and the limb is held with plaster. In fifteen days massage is begun. He prefers operation for relief of deformity of the forearm and hand to apparatus.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MEETING of Nov. 18, 1902, Dr. J. G. Blake in the chair.

DR. J. RIDDLE GOFFE of New York, by invitation, presented a paper entitled

THE IMPROVED VAGINAL METHOD OF OPERATING FOR THE RELIEF OF PELVIC DISEASE IN WOMEN.

(See page 81 of the JOURNAL.)

DR. EDWARD REYNOLDS: Mr. President, It is somewhat difficult for me to speak upon this subject because the work we were privileged to see this afternoon has left my opinions in a somewhat chaotic state. I do not know whether I shall find that Dr. Goffe has affected my preconceived ideas a good deal or not at all. It seems to me that the keynote of success in surgery is the remembrance always, all the time, at every step, and at every operation, that the operation is done for the benefit of the patient. I have done a great deal of vaginal work in two limited lines, namely, operations to provide for the support of the uterus, and dealing with pus in the pelvis through the vagina.

I have believed, and do still believe, that radical work is better done through the abdominal incision. I told Dr. Goffe before I came here that I intended to speak very plainly, so far as my ideas went, upon what I have learned and seen to-day. He did three operations to-day. The first was a retroversion with thoroughly adherent appendages. Tying off was difficult, and he met with all the difficulties that we are all so familiar with, and I must confess that he perhaps met them as well by the vaginal route as they could be dealt with by the abdominal method; but I think any good operator could have dealt with that case through

³⁸ Cong. de Méd., Paris, xiii.

³⁹ New York Med. News, 51, No. 7, Aug. 16, 1902.

⁴⁰ Trans. Am. Ortho. Assn., 1902.

the abdominal route, and have done the work in not much more than half the time, and fully as well. The second case was a similar one with fewer adhesions, and I think he did that better and more quickly than it could have been done by the abdomen; and that case upset my ideas a good deal. In the third case the patient had been having a temperature, and was very sick. He removed radically the offending tube and ovary through the vagina, where I should have drained it by extra-peritoneal incision.

As I think the matter over carefully, it seems to me that in considering the operation to be done, that is, whether it is to be done by the vaginal route or by abdominal incision, the cosmetic issue should not be considered, but only what is the better and safer procedure; not what the patient prefers. As I look further at the indications and contra-indications for the vaginal route, it seems to me that asepsis in the vaginal route is much more difficult to obtain than by the abdominal route, but I have learned that after extensive operations by the vaginal route the patients show less shock, less digestive disturbance, and less disturbance of other functions, than after the same amount of trauma by the abdominal route. We must bear in mind that not only Dr. Goffe but other experienced operators have declared that they do not get infection by the vaginal route.

I do see, I think, one pretty clear indication for the use of the vaginal route, if the operations come out as well as they are said to do, and as it seems *a priori* that they may, and that is in plastic operations, especially cystocele. I shall probably feel bound to try the vaginal shortening of the round ligaments in connection with shortening the anterior wall for the class of cases where I have to do plastic operations, and add the correction of a displacement.

I must say that while I am not a bit converted as to the superiority of the vaginal route, I yet feel that I must think the matter over once more.

DR. W. H. BAKER: I think we all feel indebted to our friend, Dr. Goffe, for coming here and giving the society the benefit of his paper and his operations. It was certainly a very beautiful sight to see the facility with which Dr. Goffe brought the fundus down, and the readiness with which he did the operations at the Free Hospital for Women. I can see many advantages in using the vaginal incision. I did the first vaginal hysterectomy in this city about 1884. Since that time I have done a great deal of that work by the vagina, but as the years have gone on I have grown stronger and stronger in favor of the abdominal route, or the combined method. In malignant disease where the cervix is affected, I have used the vaginal route. After we have removed the cancerous uterus there is something wanting to prevent its recurrence. In the series of cases which I presented years ago I always followed the knife and scissors with the cautery. Seventeen years have passed away since those operations were done, and there has been no recurrence in many of the cases which I have been able to follow. The diagnosis was confirmed by the microscope. I am a strong believer in the efficacy of the cautery supplementary to the knife in cases of malignant disease, and

if that can be done as well by the abdominal method as by the vaginal method, why all right; but such is not the case, so I prefer the combined method in these cases.

I can see a great deal that is of advantage and practical in the anterior incision that Dr. Goffe uses.

In regard to myomectomies, inasmuch as myomas are naturally located in the body of the uterus and seldom in the cervix, I think we can remove them better through the abdominal incision than we can through the vaginal incision.

DR. WALTER L. BURRAGE: My only regret is that I was unable to see Dr. Goffe's technique this afternoon. In November, 1895, I read a paper before this society on operating by the vaginal route. Since then I have devoted myself more particularly to the posterior vaginal incision, and perhaps I have neglected the anterior vaginal incision, but I have done so on this account,—I think the posterior route permits better drainage, and I have felt disinclined to make the extensive separation of the bladder from its attachments, called for by the anterior route. My own experience has been that shortening the round ligaments by the abdominal route, according to Dr. Goffe's method, that is, stitching the round ligaments folded on themselves to the anterior face of the uterus, has not been very successful. I remember doing five cases of that sort about two years ago, and three of them were failures. Very likely I did not do them right, although I did them very carefully. Not having had success with shortening the round ligaments after this method by the abdominal route I have not felt like doing it by the vaginal route. There has been a question also about shortening the utero-sacral ligaments. I have shortened the utero-sacral ligaments by the vaginal route with success. I did it in a case of prolapse, and was gratified with the result, but I think it is a very difficult operation. I have found it necessary to divide the utero-sacral ligaments, especially in cases of retroposition with ante flexion, more frequently than to shorten them. My view being that shortened utero-sacral ligaments are the cause of more trouble than lengthened ones. I do not think we have learned all there is to know as to the mechanics of retrodisplacements, and I think Dr. Goffe has taken a step in the right direction. I must say, however, that at present I feel that I can correct malpositions of the uterus better by the abdominal route, for I can see better.

Lately I have had great success with the operation devised by Dr. J. C. Webster of Chicago. He seizes the round ligaments about two inches away from the uterus, carries the folds through perforations in the broad ligaments below the utero-ovarian ligaments, and stitches them to the posterior surface of the uterus at about the region of the utero-sacral ligaments. In that way not only is the uterus raised up in the pelvis but also the ovaries and tubes. Often after the Alexander operation, and sometimes after suspensio uteri, the ovaries and tubes are left prolapsed. As I have said, I feel rather inclined toward the abdominal route in attacking these cases, because we can see more. I know Dr. Goffe has great skill in operating by the vaginal route and I can see advantages in the route; but my experience leads me more to the abdominal route.

DR. CHARLES M. GREEN: I have known of Dr. Goffe's work by the vaginal route before now, and I would like to express my great admiration of his skill. I have had no experience in operating by the vaginal route, but have done all my work by abdominal incision. The latter route seems to me more surgical; but in absence of personal experience with the vaginal route, my preference for the abdominal route may be based on prejudice rather than opinion.

The chief objections to the abdominal route seem to be that there is greater shock than attends operation by colpotomy, and that the abdominal scar is objectionable to many women. There is probably less shock by the vaginal route; but there is seldom any serious shock in skillful operation by the other method. There is, of course, some risk of hernia through an abdominal scar; but this risk is constantly diminishing with increased care and skill in closing abdominal incisions. The objection to an abdominal scar does not influence me in the slightest.

It evidently requires far greater skill to work successfully by the vaginal incision; and probably some operators who do very creditable work by the abdominal route could never acquire the technique of the vaginal method. It seems to me that, as Dr. Baker has said, every surgeon should use the route by which he can work with the greatest success.

However, we must not regard this question as settled. The time may yet come when the vaginal route will be a generally accepted surgical method for a large proportion of cases. Meanwhile, I wish heartily to congratulate Dr. Goffe on the admirably skillful work he is doing.

DR. F. B. HARRINGTON: In septic cases I prefer the vaginal route, as a general rule. I believe that the more critical the patient's condition, the safer this route becomes. The incision which I prefer is a vertical one in the median line through the vagina into the posterior cul-de-sac.

This incision can be enlarged by dilators. It does not jeopardize the ureters, and is accompanied by very little hemorrhage, which is often severe with a transverse incision. Tubes dilated with pus and separate abscess cavities may be opened and drained. I do not attempt extensive removal of diseased tissues. It is marvelous how great the repair of septic pelvic organs will be after thorough incision and drainage. In a number of instances I have seen pregnancy follow treatment by the vaginal route, when if operation had been done by the abdominal route, the tubes and ovaries would certainly have been removed, and sterility have resulted.

Dr. Goffe's experience, and the description of his method, has been very interesting and instructive to me. I shall be inclined to make greater trial of this route as a result.

DR. G. W. KAAH: I had the privilege of seeing Dr. Goffe operate, and was interested to see how much could be done through the vagina. Intra-abdominal operations upon the round ligaments to hold the uterus forward have not proven reliable, and I would not expect them to prove more so if done per vaginam. The good results obtained by Dr. Goffe must be due to his special technique. By his broad dissection of the anterior vaginal wall, and by

pushing up the bladder, he gains a wide healing surface which, when union is assured, helps to hold the fundus forward. Further than this, when he puts a gauze drain through the posterior cul-de-sac he gets a resulting cicatricial union by second intention, which in its contraction draws the cervix backward and upward.

As to cosmetic results, the curved incision, which later is covered with the new growth of hair, is as much to the purpose as the vaginal scar; moreover, it is a question whether these extensive dissections of the vaginal wall do not leave an element of weakness. I have now under my care a number of cases where the sole discomfort is in connection with the cicatrix of a vaginal operation.

As I saw Dr. Goffe's operations it seemed to me there was a much greater loss of blood than if done by the abdominal route.

While recognizing Dr. Goffe's ability and great dexterity in operating through the vagina, I feel that the route through the abdominal wall is the best for most operators.

DR. MALCOLM STORER: I can only say that some years ago, after a certain amount of experience with the vaginal method, I became discouraged, and since then have done almost everything by the abdominal route.

We must remember that there are many cases where the vaginal operation is called for. Success in the vaginal operations is perhaps more dependent on familiarity and experience than in abdominal. I feel that I must have this familiarity, and what I have seen of Dr. Goffe's work this afternoon leads me to feel that as I become more at home in the vaginal route, I shall find its field continually broadening,—as Dr. Goffe says.

I want to say just a word about the scar. I don't think Dr. Reynolds and Dr. Green have been quite fair about this. Many women do object to the scar. I can think of many women who are troubled a great deal about their scars, even when they are ideally inconspicuous from the surgeon's point of view. It seems to me if the patient does object to it, and if the surgeon is as able to do the operation by the vagina, it is well to allow her to choose.

DR. FRANK A. HIGGINS: I have been very glad of the opportunity to hear Dr. Goffe's paper on the vaginal route for operation. The part which interests me most is that relating to his operation for retroversion of the uterus. Although I have performed the operation of ventro-suspension for retroversion a good many times, I have never felt perfectly satisfied that it is the best operation, or that it is perfectly satisfactory as an operation. There are many cases, in which the uterus is large and heavy and sinking down in the pelvis, that ventro-suspension seems to be just the operation for, but for the small uterus in a patient likely to become pregnant, I am not entirely satisfied with it. I have done the vaginal operation for retroversion only once, but with an excellent result in that patient.

I think as the result of Dr. Goffe's paper and his visit to Boston, I shall try his operation for vaginal shortening of the round ligaments, and I hope with success.

DR. J. R. GOFFE: Mr. President and Gentlemen of the Boston Obstetrical Society,—I appreciate fully and value most highly the thoughtful consid-

eration you have given to my theme. I had no expectation of arousing any enthusiasm over this method as an active factor in your work; it is unreasonable to expect that among men so experienced and skilled in the technique of abdominal work. But I did indulge the hope that my presentation of the subject might appeal to some of you and perhaps induce you to widen the class of cases in which you find the method applicable in your practice. Dr. Reynolds has given you a most accurate report of the work done this afternoon. It is almost photographic in its faithfulness to the clinical picture presented, and in the fairness of his estimate of the work. The remote results will be embodied, I trust, in a later report.

The function of the round ligaments has been alluded to by one speaker, and in his reference to the experiment of cutting the round ligaments without producing displacement of the uterus there was a gracefully implied criticism of my use of the round ligaments to relieve displacement. My idea of the function of the round ligaments is that they limit the excursions of the fundus uteri. When the bladder fills, the fundus rises and approaches the promontory of the sacrum. When the bladder empties, the round ligaments (which are composed of muscular structure) contract and pull the fundus again to the front so that the intra-abdominal pressure will impinge upon its posterior face. In pregnancy the round ligaments have a very important function in keeping the fundus forward against the abdominal wall so that the intestines cannot get in front of it. They serve the purpose also, when artificially shortened, to keep the fundus to the front and in position till the more important structure of the utero-sacral ligaments can recover its sustaining power and do the work permanently.

Dr. Harrington in his remarks suggested the principle that underlies the vaginal work and to my mind makes it superior to the abdominal route. In cases of acute pelvic abscess he says his experience has convinced him that the operation of choice is vaginal section. Now why? Because he has found that such cases do not stand operation well and it is a far safer procedure for the patient to open through the vagina than through the abdomen. The same rule holds in patients emaciated and worn out from prolonged pelvic inflammation. Now if the vaginal section is so much freer from danger in this class of cases that it becomes a life-saving measure as contrasted with a fatal issue when laparotomy is done, it must be accepted as freer from depressing effect in all other conditions, and experience confirms this *a priori* conclusion. The shock is less, incomparably less, and so is the danger of subsequent peritonitis. Indeed, in all my vaginal work, I have not had a single case of general peritonitis, while prolonged operations involving intra-pelvic work and multiple procedures along the vaginal tract are borne without the least depression beyond that occasioned by the prolonged anesthesia. Many of the cases requiring intra-pelvic work also suffer from lacerations of the cervix and perineum and cystocele. What could be more systematic or logical than begin with the vaginal section, doing such conservative work upon the appendages as may be indicated, then shorten the

round ligaments for the relief of displacement, do a trachelorrhaphy and a colporrhaphy, and wind up with a perineorrhaphy? Such work can all be done without leaving the operating chair.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE TWELFTH ANNUAL MEETING, HELD AT ST. JOSEPH, MO., DEC. 29 AND 30, 1902.

FIRST DAY. — MORNING SESSION.

The association convened in the Commercial Club Rooms, under the presidency of Dr. JAMES E. MOORE of Minneapolis, Minn.

AN ADDRESS OF WELCOME

was delivered by Dr. J. GEIGER of St. Joseph, Mo., which was responded to by the president.

Dr. C. H. MAYO of Rochester, Minn., presented a paper entitled,

EVOLUTION OF THE TREATMENT OF CANCER OF THE RECTUM.

Certain definite results are desired in operations upon cancer of the rectum, namely, permanent cure, low operative mortality and a controllable anus or its best substitute. These results are modified by location, stage of progress, and by the age and condition of the patient. Previous to 1870, operative treatment was almost limited to palliation and lumbar colostomy. From 1870 to 1880 there was a marked advance in all surgery. Drainage methods were developed. Kocher exposed the rectum by removal of the coccyx, and several perineal operations were advocated. From 1880 to 1890 the development of the germ theory revolutionized surgery, and this period was marked by antiseptics and drainage. More extensive perineal and vaginal operations were advocated, and Kraske made his great advance by resecting the sacrum. The modern surgical treatment is the block removal of the rectum, glands and gland tissue from below, in some cases, but more often by a combined abdominal and perineal method. Through an abdominal incision a low section of the sigmoid is made, this portion of the colon being saved as a fecal container, and the cut ends of the bowel inverted and closed by a circular suture, rendering the remainder of the operation aseptic. The rectum is separated laterally and below by a peritoneal incision and pushed down with the glands and fat by blunt dissection, the separation being carried as low as possible beneath the bladder, the remainder of its removal being completed through the perineum. The sigmoid is freed sufficiently to bring the cut end out of an inguinal McBurney muscle separation opening, the skin incision of which is one and one-half inches to one side, and to which the end of the sigmoid is sutured. The bowel is also sutured within the abdomen to prevent prolapse, and a pad compression of the skin-covered sigmoid loop gives a fairly controllable anus.

To sum up the main objections of the past, the author stated that we have:

(1) Ineffectual removal with local recurrence, so common in the perineal type.

(2) The extensive mutilating character of the Kraske before operative conditions were known.

(3) The frequent failure of all methods of union of proximal and distal portions of the bowel, which, when united with the destruction of the levator ani and internal sphincter, and anus saved, represented but one third of the controlling apparatus of the bowel.

(4) The frequent formation of stricture, either cicatricial or cancerous after operation, necessitating inguinal colostomy.

(5) The loss of the fecal container in straightening the sigmoid.

That sentiment, and not chance, has proven the main reason for continuing to place an uncontrollable anus in an inaccessible situation. The gain in the combined operation has been in a selection of the operation to the case, radical removal, *en masse*, with all glands, fat and connective tissue, or colostomy for palliation; the retention of the sigmoid as a fecal container; the peculiar formation of the anus, giving a fair control in an accessible situation.

DR. H. C. CROWELL of Kansas City, Mo., followed with a paper entitled

CARCINOMA UTERI.

Unless very early discovered, he believes that nothing is gained by hysterectomy for carcinoma of the cervix. Later operations may avail in carcinoma of the body of the uterus. The diagnosis should be confirmed by the microscope in the hands of a competent pathologist. The uterus must be freely movable, capable of being dragged down to the vulva. If not, it is quite probable that the disease has involved the utero-sacral ligaments and adjacent tissue, making an operation of doubtful utility. If the disease is clearly made out by touch, appearance and clinical history, it is rarely possible to secure a radical cure by hysterectomy, if the fatal termination is not accelerated. In cases well advanced, his individual experience leads him to believe that more days or months, as the case may be, are added to the life of the patient than by any attempt at extirpation, by cutting and scraping away the necrotic tissue, down to solid tissue, burning that surface with the thermo-cautery, and treating subsequently by touching the surface occasionally with 4% formalin. By this treatment disintegration is retarded, hemorrhage and discharges are checked, enabling the patient to recuperate sometimes to a remarkable degree. The suffering is lessened, and the patient is relieved of the shock and dangers attending more radical procedures. The essayist urged more frequent early examinations of parous women, who should be advised of the expediency of such examinations as a routine safeguard after the age of thirty-six.

These two papers were discussed jointly.

DR. M. L. HARRIS of Chicago pointed out the necessity of making a laparotomy previous to the operation in all cases in which the disease extends high and the surgeon is not perfectly sure from his examination that it is limited to the lower part of the bowel. His remarks had reference to the paper of Dr. Mayo. This preliminary laparotomy should be for three purposes: (1) For examination, in order to determine whether or not the case is operable; (2) to facilitate operation, provided one is

necessary. The surgeon could decide if it is a case for complete operation by the combined method.

(3) To perform a colostomy if the case is inoperable. He thinks colostomy is an extremely valuable operative procedure in many cases.

DR. HENRY T. BYFORD of Chicago thinks the author of the second paper, Dr. Crowell, is too pessimistic. He narrated the case of a woman upon whom he operated more than ten years ago. In this case cancer had involved the entire cervix. Both he and the friends of the patient thought she would surely die, but the woman was still alive, and has not had a recurrence. He said he could report a number of cases of carcinoma of the cervix that had recovered following operation.

DR. H. D. NILES of Salt Lake City, Utah, said he recently had a case in which he was in doubt as to whether the stricture of the bowel was syphilitic or malignant. He used such measures as were available, and was still in doubt. He thinks in such a case it would be wise to do a colostomy and at the same time explore parts of the bowel. An excellent result was obtained so far as the sphincter was concerned. The patient had excellent control of the bowels. The gridiron incision and the advisability of doing a colostomy when in doubt, are the points that impressed him as he listened to the paper of Dr. Mayo.

DR. A. C. BERNAYS of St. Louis, Mo., said he has had the opportunity of seeing Dr. Mayo perform the operation he had described, the case being one of very hard carcinoma, confined to the last portion of the rectum, about one inch above the sphincter. The operation, as executed by the Mayo brothers, was a beautiful piece of surgery, and any one who has the opportunity of seeing this operation done will hereafter perform it in preference to any other.

DR. D. S. FAIRCHILD, of Clinton, Iowa, stated that after having had some experience in operating for cancer of the rectum by the sacral route, and having had but one permanent recovery, he was interested in the combined operation described. He is thoroughly convinced that surgeons, after witnessing this method of operating, will conclude that it is the procedure which will be adopted hereafter.

DR. A. E. HALSTEAD of Chicago reported a case of

DISARTICULATION OF THE HIP FOR SARCOMA OF THE FEMUR,

after which he made some remarks upon the diagnosis and prognosis in sarcoma of the femur.

DR. B. B. DAVIS of Omaha, Neb., called attention to elevation of temperature in cases of sarcoma of the femur. Several years ago he had a case of sarcoma of the femur, his first diagnosis having been osteomyelitis of chronic form rather than sarcoma, simply because of the temperature at the time, but he soon found out his mistake. In consulting standard textbooks, he said no mention was made in regard to elevation of temperature in these cases. This was a symptom which should be remembered.

DR. JOHN P. BORD, of Omaha, Neb., mentioned a case of carcinoma of the neck of the femur. Six or eight months previously, a stationary engineer, forty-five years of age, while pursuing his occupa-

tion, sustained a fracture of the neck of the femur from slight violence. There was a history of alleged rheumatic pains or sciatica prior to this time. After his injury the patient was taken to his home, attended by other physicians, who saw him a number of times, and he was treated for his fracture, so that when the speaker saw him it was too late to do the man any good on account of marked cachexia.

While in a fleshy individual he thinks it would be impossible to differentiate this condition by ordinary manipulative methods, yet with the aid of the x-ray, in cases of fracture sustained from comparatively slight violence, the surgeon might be led to suspect the condition and secure the advantage of an x-ray examination to determine the early existence of the disease.

DR. WILLIAM JEPSON, of Sioux City, Iowa, mentioned six cases of sarcoma of the femur, two of which developed at the upper end of the femur, and were not subjected to operative intervention. In four the disease involved the lower end of the femur, one of which had begun directly in the tibia, involving the knee joint and then the femur, and the other three were of the periosteal type. Three of the four were subjected to amputation at the junction of the upper with the middle third; the other one was subjected to primary hip joint amputation. Of the three subjected to amputation through the thigh, two died; in other words, two of the three were subjected to secondary disarticulation of the femur at the hip joint. One of these two died; also one not subjected to this operation. Out of six cases there are only two living.

DR. HALSTEAD, in closing the discussion, said he has seen two cases of spontaneous fracture of the humerus with central sarcoma. Pathological fracture was the first evidence. In the case reported, of central giant-cell sarcoma, Coley's toxins were used for six months continuously, yet the tumor seemed to grow as fast as it did before their use. Patient was also treated by the x-ray for six months without any benefit. In all cases of sarcoma the use of Coley's toxins has not been followed by success.

DR. A. E. BENJAMIN, of Minneapolis, Minn., read a paper entitled

OBLIQUE INGUINAL HERNIA.

The author spoke of the treatment of hernia by the early practitioners, saying it was painful, unsatisfactory and harmful. The present method of operating for hernia, however, is a noted example of the evolution of surgery.

He said surgeons have reached a point in hernial operations where a permanent cure is quite certain, still there are too many methods and a larger percentage of relapses than we should have. Some of the causes of imperfect results were pointed out.

An operation that is not altogether new, but worthy of consideration, is as follows: The patient is prepared by having the parts shaved the morning of the operation. In doing so, infected areas or vesicles are avoided, which may result when the shaving is done the previous evening or before the parts have been thoroughly cleansed. The time intervening between the evening and morning of the operation favors a greater multiplication of micro-organisms. The bowels are emptied and subse-

quently kept free from gas accumulation, which lessens the internal pressure. An ordinary incision for a Bassini operation is made. The aponeurosis of the external oblique is slit up to a point opposite the internal ring. The fibers of the internal oblique and transversalis muscles are divided by blunt dissection, thus opening the inguinal canal. The internal oblique and transversalis muscles are found closely connected. They are not separated, but the aponeurosis of the external oblique is carefully and thoroughly removed from the internal oblique. The lower portion is dissected down to Poupart's ligament, and the transversalis separated from the peritoneum. Such careful dissection and positive identification of structures are an important aid in securing direct apposition and firm union. It corrects all defects of nature in this region. The cord is now raised and silkworm gut sutures introduced, passing through the skin, Poupart's ligament, internal oblique and transversalis. The loop is made on the lower side of the transversalis. The needle, re-entering the transversalis and internal oblique, passes through the skin to the outer and lower side of the cut near the point of entrance. From three to five sutures are similarly introduced. These sutures pull the internal oblique and transversalis below the shelving edge of Poupart's ligament, and are observed to make a firm barrier against any internal force. The sutures are then tied over rolls of sterilized gauze. The spermatic cord rests upon the internal oblique. The external oblique is then closed over the cord. Interrupted figure-of-eight sutures are introduced, bringing the external oblique in apposition with Poupart's ligament. This also approximates the skin, and the sutures are tied over a roll of sterilized gauze. The sutures are usually left two weeks.

The author drew the following conclusions from this operation:

- (1) There are no sutures for the tissues to absorb.
- (2) There is no additional culture media in which infectious micro-organisms may grow and cause deep abscesses.
- (3) There are no buried, non-absorbable sutures left to irritate the tissues and cause further trouble.
- (4) There is no necrosis from tight sutures, therefore few, if any, stitch abscesses.
- (5) The gauze rolls act as elastic cushions, which prevent scars from the sutures.
- (6) The operation completely closes the breach, and makes a firm wall.
- (7) All sutures, after serving their purpose, are removed, leaving only the natural supports.

FIRST DAY. — AFTERNOON SESSION.

DR. W. W. GRANT of Denver reported a case of

RUPTURE OF GALL BLADDER OR DUCT FROM VOMITING, WITH RUPTURE OF THE APPENDIX IN THE SAME PATIENT.

He also reported two recent cases of appendicitis because of the interest connected with drainage and phagocytosis. In connection with these cases, he states that he is satisfied of having saved some patients after peritoneal extravasation by the

liberal use of gauze for drainage. In abdominal operations drainage imperils the integrity of the abdominal wall, therefore predisposes to hernia. It should consequently be dispensed with as soon as possible. But in the enthusiasm for new theories and facts, in a justifiable belief in the efficacy of hyperleucocytosis, he believes it is not wise to discard hastily surgical procedures which have stood the test of abundant experience.

Dr. Grant closed his paper by reporting a case of acute yellow atrophy of the liver at length, which was accompanied with a report by the pathologist. Whether the condition is primarily a general infectious disease of a rare and unusual nature, or primarily a local infectious disease of the liver, is not known. The suggestion of an intestinal origin has no distinct foundation. The resemblance to phosphorus poisoning is striking, though differing in important particulars. While the urine of both may contain leucin and tyrosin, they are more constant in the former disease. Evidently the disease is rapidly diffused through the circulation, and future investigations will probably disclose a bacterial origin and nature.

DR. B. B. DAVIS of Omaha, Neb., read a paper on

CHRONIC PANCREATITIS AND PANCREATIC CYST.

Two cases were reported, one of pancreatic cyst, the other chronic pancreatitis, both of which had previously been subjected to exploratory abdominal section, and the diagnosis of malignant disease of the pancreas made.

In discussing the etiology of pancreatitis, the author stated that infection was considered the determining factor in most cases, the infection being secondary to gall stones, cholecystitis, gastritis, duodenitis and zymotic diseases, particularly typhoid fever and influenza. It was thought probable that syphilis, alcoholism and general arteriosclerosis might also cause a small percentage of the cases.

In diagnosis, the clinical symptoms will have to be depended upon. Glycosuria, fatty stools and muscle fibers in the stools, which theoretically ought to be diagnostic factors in pancreatic disease, practically have usually been found absent. In cases in which glycosuria was present, destruction of the islands of Langerhans has been found to exist. In all cases in which infection is the causative factor, prolonged drainage of the gall bladder was recommended.

DR. M. L. HARRIS emphasized the frequency with which stomach troubles preceded chronic pancreatitis. It is possible that stomach troubles, cases of ulcer of the duodenum, are undoubtedly instances of chronic pancreatitis, and may be the result of infection.

DR. J. W. ANDREWS of Mankato, Minn., read a paper on

GUNSHOT WOUNDS OF THE STOMACH,

and reported a case of a boy eleven years of age, upon whom he had operated. The patient rallied from the shock, and did well for the first three days after the operation, when he began to fail, and died on the eighth day. A postmortem examination showed that death was from septic peritonitis.

(To be continued.)

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THE ESSENTIALS FOR SUCCESSFULLY TREATING TUBERCULOSIS.

It is well, from time to time, to pass in review the present state of our practical knowledge regarding tuberculosis. It may appear to some that we have not made very much advance since the original work of the late Dr. Henry I. Bowditch on the distribution of the disease and its relation to soil and moisture. The discovery of the tubercle bacillus later, by Koch, has naturally added largely to our knowledge of the disease from a scientific standpoint, but the treatment has assumed more and more the character advocated by Dr. Bowditch and his immediate successors. Certain points, however, seem worthy of attention at this time when the sanitarium treatment of the condition appears to be at the very height of its popularity. In the first place, however enlightened physicians may be on the subject, there is a very popular impression that successful treatment of the disease can be had only at certain places. It is unquestioned that Colorado and many localities in the West and South are more desirable than places nearer the seaboard, but it should not, therefore, be inferred that tuberculosis may not be treated with a large measure of success in almost any portion of the country. The establishment of sanatoria in very many states, and the success attending the treatment of patients at these various institutions, demonstrates beyond question that location is by no means the only element to be considered. This fact certain members at least of the profession have long been aware of. The laity is naturally slow to accept the newer position. Elevation above the sea level is another matter about which there has been a considerable degree of controversy. For example, in this State it has recently been very vigorously maintained that no new sanitarium should be built at a height

of less than a thousand feet above sea level, and this in spite of the fact that equally good results have been obtained very much below this level, as, for example, at Sharon as compared with Rutland. It may, therefore, at the present time be accepted that, although certain definite advantages result to persons suffering from tuberculosis by residence in high altitudes and long distances from the coast, it must, nevertheless, be acknowledged that the relative advantages of these regions have been overrated, and that most excellent results may be obtained very much nearer home.

The question of classification of patients suffering from consumption should be given far more attention in the future in order that some uniform standard may be established and just conclusions drawn from available statistics. This has been insisted upon by certain men prominent in the study of tuberculosis, and it is to be hoped their example may be followed by all who publish statistics on the subject. For example, the terms "cured," "arrested," "advanced," as applied to tuberculous persons, are to the ordinary mind absolutely vague and indefinite. If a uniform standard could be established under which each of these terms might have an absolutely definite meaning, much benefit to the cause of statistics would forthwith result. The significance of the various terms are given by Dr. V. Y. Bowditch as follows, in the recent report of the Sharon Sanitarium:

"The term 'incipient' is applied to cases in which the physical signs, such as changes in percussion or respiration, possibly a few *râles*, are confined to small areas, usually in one or both apices of the lungs, and in which only slight constitutional signs, such as fever, indigestion, or loss of strength are present.

"The term 'well-marked incipient' is applied to those who have larger areas of the lungs involved with similar constitutional symptoms.

"The term 'advanced' is applied to those in which the areas involved show more or less consolidation or even excavation of the lung tissue, accompanied by more or less fever and other constitutional symptoms.

"The term 'arrested' is applied to all cases in which cough and fever have disappeared, when the sputa, if present, show an absence of bacilli, the general symptoms and appearance being those of health when they leave the sanitarium.

"The term 'cured' is not used until many months after the disappearance of all active symptoms and when the patient has returned to ordinary conditions of life. Many of those discharged as 'arrested,' however, would, from their general condition, be with justice classed under the more favorable term."

It is, perhaps, not a matter of vital consequence exactly what nomenclature should be adopted, but it is unquestioned that public and professional interest in the subject is sufficiently widespread to demand a uniform standard of some sort. By this means alone can statistics be made of value in the work which is now before us of determining upon ways and means of caring for the various classes of tuberculous persons with which every community is provided.

The lessons, now becoming familiar to physicians, but which the laity still needs to have reiterated again and again by every means at our disposal, are that climate and location, important as they are, are far less essential to the well-being of the consumptive than general hygiene, good food and open air. Given a location on fairly high ground, with a sandy soil, and protected from the violence of north and east winds, the consumptive will do well, provided the most rigid personal hygiene be required, regarding food, sun and air. This is apparently what experience is teaching.

SALT STARVATION IN THE TREATMENT OF EPILEPSY.

THE dietetic treatment of disease in general is coming to have a more and more prominent place in therapeutics. The theories recently advanced regarding the possible etiological relationship of disorders of the digestive tract in relation to epilepsy have perhaps directed particular attention to problems of metabolism in this disease. However this may be, it seems to have been demonstrated that the chlorides are undesirable in persons suffering from epilepsy, and that the restriction of diet containing them is of positive benefit. A short paper, to which must be given weight on account of the wide experience of the author, Dr. L. Pierce Clark, formerly assistant physician at the Craig Colony, has recently appeared in the *New York Medical Journal*.

Dr. Clark calls attention to the fact that epileptics are usually extremely fond of table salt, and that many eat as much as 300 or 400 grs. a day, leading to a saturated condition of the body tissues with the chlorides. By giving less salt it is naturally easily possible to reduce the sum total of chlorides. It has also been found by animal experimentation that bromine can replace chlorine in body tissues, hence by withdrawal of salt and continual administration of bromides an organic bromide compound is formed which fulfills the physiological roll of chlorine and also acts as a sedative to the disease. The principle is not a new one, but particular attention from a practical

point of view has been drawn to it of late. It is furthermore found that the dosage of bromide may be very materially decreased in the salt starvation method. Particularly is this treatment to be recommended in severe so-called idiopathic cases requiring large doses, and hence in danger of intoxication. It is also of value in cases where bromide proves of little value in those totally intractable to the bromide salt and in chronic cases in which long-continued sedative action is necessary. It has been suggested, and is perfectly capable of being carried out, that sodium bromide should be substituted for table salt in the patient's food.

It is not maintained that this simple treatment should replace general hygienic measures for the relief of the condition, but it is Dr. Clark's opinion that the withdrawal of salt marks the greatest therapeutic advance in the treatment of epilepsy since the discovery of the bromides. Fortunately for the practical usefulness of the method it is inexpensive, easily carried out by the patient, and requires no elaborate instructions. Sufficient evidence is accumulated to make it altogether desirable that the withdrawal of salt should be insisted upon in all cases of so-called idiopathic epilepsy.

THE DECADENCE OF TYPEWRITING.

RECENT experiences force upon us the conviction that typewriting has not proved an absolutely unmixed blessing to the human race. We would not for a moment disparage the merits of the "writing machine" as a very marvelous mechanical invention, but when placed in the hands of certain members of the human family, it becomes a veritable thorn in the flesh. Good typewriting, done by persons of intelligence and special training in the subjects of which they write, we need not discuss; its merits are self-evident. But the time has certainly come to enter a vigorous protest against the increasing amount of bad typewriting, done by persons who are unable or unwilling to spell correctly, who apparently know nothing of punctuation, paragraphing, or capitalization, and whose knowledge of technical terms is too limited to merit consideration. These factors, added to an evident carelessness in the mere mechanical execution of the work, has produced a variety of typewritten copy which makes us long for the days when writers had time to express their thoughts in script, and took a certain pride in correct orthography. These days are, however, apparently past, with small hope of return. The hurry is too great to permit of care in such details, and the typewriter has undoubtedly finished the work of demoralization.

The conscienceless way in which manuscript is presented to us, and, we have no question, to others engaged in like pursuits, is worthy of serious investigation and persistent protest. Not long since we found it necessary to reject an entire report, because of its hopeless confusion of phraseology and neglect of the ordinary rules of grammatical construction and spelling. It was impossible to correct, and its evident inaccuracies rendered such an attempt, even, unadvisable. Such manuscripts mark the extreme of a perfectly apparent tendency. Expression, grammar, spelling and all the other details which go to make up acceptable English have suffered and are suffering at the hands of careless and imperfectly educated stenographers and typewriters.

A still greater responsibility rests with writers, who in an excess of confidence in their subordinates do not revise their manuscripts before sending them for publication. The result is that invariably errors and inaccuracies creep in which in spite of editing find their way, in part, into the final printed paper. That all this tendency to carelessness is increasing year by year there cannot be the slightest doubt. Whatever advantages in the way of economy of time modern methods of expressing one's ideas may have, they certainly do not conduce to the improvement of our medical literature either in form or quality.

After writing the foregoing we were glad to find a similar sentiment expressed in forcible language by our contemporary, the *New York Medical Journal*.

MEDICAL NOTES.

"THE KING'S SANITARIUM NUMBER."—The issue of the *London Lancet* for Jan. 31, 1903, is devoted to a consideration of sanitarium for tuberculosis. The three prize essays on the King's Sanitarium are published in full, written by Drs. Arthur Latham, F. J. Wethered and Egbert C. Morland. The essays discuss in great detail all matters pertaining to the establishment and maintenance of ideal sanitarium for consumption, and should be widely read by physicians generally and especially by those interested in the problems underlying the most economical and satisfactory methods for the treatment of tuberculosis.

PLAGUE AT MAZATLAN, MEXICO.—In spite of sanitary precautions and medical care the number of cases of plague at Mazatlan, Mexico, is said to be steadily increasing. The disease has also appeared at neighboring towns.

STREET-CAR COLDS.—The *Bulletin* of the Chicago Health Department makes the following comments on the evils of street cars: "‘Street-car colds’ are, in the experience of every physician in general practice, increasing with frightful rapidity. Pneumonia and bronchitis, as direct results, are endemic in every part of the city. Since the first of the year there has been a 22% increase in the deaths from these two diseases, and, as compared with the first ten days of 1902, the increase is a little more than 41%. Again the department urges that every able-bodied person shun the street cars, both surface and elevated, as far as possible. Especially should men, young and middle aged, walk rather than ride in them any reasonable distance. A brisk walk to his office would be vastly better for every business man than a ride in the mephitic, disease-saturated atmosphere of street cars."

ENNO SANDER PRIZE.—The Enno Sander Prize, of the Association of Military Surgeons of the United States for 1903, will be awarded to the author of the best essay on "The Differential Diagnosis of Typhoid Fever in Its Earliest Stages." The board of award will consist of Dr. Austin Flint of New York, Colonel Calvin DeWitt of the Army, and Prof. Victor C. Vaughan of Ann Arbor. Full information concerning the contest may be obtained from Major James Evelyn Pilcher, Carlisle, Pa., the secretary of the association.

THE JOURNAL OF INEBRIETY ENLARGED.—The *Bulletin*, a quarterly medical review, which has been published since 1892 by the American Medical Temperance Association, has been consolidated with the *Journal of Inebriety*. The latter journal, which first appeared in 1876 under the editorial care of Dr. T. D. Crothers of Hartford, Conn., was the first and is still the only medical periodical in the world devoted exclusively to the scientific study of the neuroses and psychoses of spirit and drug diseases.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Jan. 21, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 34, scarlatina 26, measles 6, typhoid fever 11, smallpox 5.

BURNING OF CONVALESCENT HOME OF CHILDREN'S HOSPITAL.—The Convalescents' Home of the Boston Children's Hospital was destroyed by fire Jan. 20, at a loss of \$25,000. At the time there were about fifty patients in the building, all of whom were removed safely.

BEQUEST TO ADDISON-GILBERT HOSPITAL.—Through the will of the late George R. Bradford of Gloucester, the Addison-Gilbert Hospital of that city receives \$10,000 for the purpose of maintaining a free bed for indigent persons.

APPROPRIATION FOR AN EMERGENCY FUND IN MAINE.—A resolution has been presented to the Maine Senate, appropriating \$10,000 for an epidemic or an emergency fund, with special reference to smallpox. It is said that the State Board of Health has asked for this amount of money in order that prompt action may be taken to prevent the spread of contagious diseases.

NEW YORK.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.—At the annual meeting of the Medical Association of the Greater City of New York, held Jan. 12, Dr. Ransford E. Van Gieson of Brooklyn was elected vice-president, and Dr. Arthur C. Brush, chairman for the Borough of Brooklyn, and Dr. P. Brynberg Porter was re-elected recording secretary. The corresponding and statistical secretary reported that during the year 123 new members had been elected, and that the roll of membership now numbered 600. There were ten deaths during the year.

A CENTENARIAN.—Albert J. Akin, owner of the Mizzen Top Inn, in Dutchess County, died at his New York residence, on Jan. 12, in the one hundredth year of his age. Mr. Akin was possessed of a remarkably vigorous constitution. When he was ninety-six years old his thigh was broken in a fall from his carriage, and the fracture united perfectly; and in the following year, when he met with another carriage accident, in consequence of which he suffered from concussion of the brain and several fractures, he astonished his medical attendants and friends by making an excellent recovery.

ADULTERATION OF PHENACETIN.—The fact that phenacetin powders recently purchased from a certain druggist were adulterated having been called to the attention of the Health Department, a suspicion was felt that such adulteration might be being practised by others, and an investigation was ordered. Out of three hundred and seventy-three samples of phenacetin obtained by the inspectors from as many pharmacists in the boroughs of Manhattan and the Bronx, it was ascertained that in no less than three hundred and fifteen the drug was more or less adulterated, and the sellers are accordingly to be called to account. In some instances, it is stated, the powders sold as phenacetin contained no phenacetin at all.

APPOINTMENT. — The president of the Board of Health has appointed Dr. George Taylor Stewart, until recently superintendent of Bellevue and Allied Hospitals, general superintendent of the hospitals of the Health Department, embracing the Reception Hospital and the various hospitals for contagious diseases.

CASES OPERATED UPON BY DR. LORENZ. — At a meeting of the New York Academy of Medicine, held Jan. 15, addresses were delivered by the retiring president, Dr. Robert F. Weir, and the president-elect, Dr. Andrew H. Smith. At the orthopedic section of the academy on Jan. 16 four patients were presented by Dr. Newton M. Shaffer, and three by Dr. Virgil P. Gibney, who had been operated upon for congenital dislocation of the hip by Dr. Lorenz during his recent visit to New York, and all showed satisfactory progress. Dr. Royal Whitman also presented a case of cure in a male child operated on by the Lorenz method about a year ago.

FORMALIN IN SEPTICEMIA. — At the last meeting of the New York Obstetrical Society a case of puerperal septicemia, due to streptococcus poisoning, was reported, in which the patient's life was apparently saved by the intravenous injection of formalin. The woman was admitted to the Bellevue Hospital in a desperate condition, with a temperature of 108 and a pulse of 160. The beneficial effect of the novel procedure is stated to have been very prompt, and after a second injection the pulse and temperature subsided to normal.

A MEDICAL FELLOWSHIP AT COLUMBIA UNIVERSITY. — It is reported that a fellowship in medicine has been established at Columbia University having an annual value of \$1,200.

THE "HAPPY DAY." — The excursion steamboat "Happy Day" was launched with appropriate ceremonies on Jan. 10. The boat is being built for Charles M. Schwab, to convey children to Recreation Park, at Richmond Beach, Staten Island, which Mr. Schwab purchased last year and which will be open during the coming summer as a day resort for the poor children of New York. She is expected to carry from fifteen hundred to two thousand on each trip, and will be provided with hospital accommodations for those requiring medical attendance.

BEQUESTS OF ISAAC T. CARPENTER. — By the will of Isaac T. Carpenter, who died on Dec. 16, a bequest of \$1,000 each is left to the Woman's Hospital, the Society for the Relief of Ruptured and Crippled, the Mount Sinai Hospital, the German Hospital and Dispensary, the Nursery and Child's Hospital, and a large number of other New York medical and charitable institutions.

Miscellany.

TREVES ON VIVISECTION.

THE following statement by Sir Frederick Treves of his position in regard to vivisection, is taken from a letter written by him to the *Journal of the American Medical Association* and published in part in their issue of Jan. 10:

"My solitary utterance on the subject of vivisection is contained in an address delivered at Birmingham, in October, 1898 (*Lancet*, Nov. 5, 1898). Speaking of the suturing of intestine, I said that I had found that operations on the intestines of dogs were useless as a means of fitting the surgeon for operations on the human bowel.

"Those who are familiar with the controversial methods of the antivivisection party will not be surprised that certain of my remarks have been cunningly isolated from the context and have been used in advertisements, pamphlets and speeches to condemn all vivisection experiments as useless. . . . No one is more keenly aware than I am of the great benefits conferred on suffering humanity by certain researches carried out by means of vivisection."

Correspondence.

LETTER FROM EGYPT.

ASSOUAN AS A WINTER RESORT.

ASSOUAN, Jan. 1, 1903.

MR. EDITOR: Dec. 13 may be said to have been the first day of the present winter in Cairo, where chilly weather and more or less rain may be anticipated from then on to Feb. 1, a fact upon which stress should be placed in the interest of those who come to Egypt in search of a warm and equable climate.

On the date referred to the air was cold and the sun completely obscured by heavy clouds—a warning to such as knew the country that the time to move further south had arrived.

At Luxor, two days later, the air was balmy, and the sunshine almost too warm for comfort from 11 A.M. until half an hour before the close of day.

A visit to the tombs of the kings resulted in bitter disappointment at finding that the most recently excavated one had been looted (undoubtedly by the native guardians in charge, although nothing was proved) and everything worth stealing removed before the public had an opportunity of visiting it.

Nothing remained but the mummy in its sarcophagus, stripped of all emblems of royalty; and the fact that the mural decorations were of rather an inferior kind did not tend to improve one's feelings, as we slowly ascended three interminable flights of stone steps to reach the outer air.

Here in Assouan winter consists of two or three weeks during which certain nights and mornings are fairly cold, and the sun is at times obscured by passing clouds.

These conditions may alternate with almost the opposite extremes—like to-day, for instance, when the temperature was 85° F. on the western terrace of the Cataract Hotel (in the shade) at 3 P.M. and a clear blue sky stretched from horizon to horizon. Roughly speaking, the Assouan winter begins about Christmas Day and terminates Jan. 15 or a little earlier, after which the heat increases pretty steadily until March 1, when, as a rule, it becomes too great for comfort, notwithstanding the northerly wind which still continues to blow quite stead-

lly. Then is the time when Gezireh (or better still, Ramleh) is far pleasanter than any of the other resorts in Egypt.

At the great dam (just above the First Cataract) most of the gates are now closed, and the water has risen to within three feet of what will be its highest level. One's preconceived notions of the "great lake" which was to result from this storage of the Nile's flow undergo a change when looking down from a hill which commands a very extensive view. A sheet of water perhaps three times the size of Jamaica Pond (at a rough guess) is seen immediately back of the barrage, while further south the river beyond Philæ is apparently not so very much wider than before. The fact is the river banks are steep and rocky for almost the entire district (100 miles), which is affected by the dam, so that while the depth of water (65 feet immediately behind the masonry) is much increased, the superficial area is not so very much affected, and but little arable land is submerged. This holding back a billion tons of water does not in the least affect the climate of Assouan; for aside from the comparatively slight increase of water surface, a southerly wind which might possibly bring moisture this way is practically unknown in winter.

So the place remains the driest and warmest spot where one can live in comfort at a time when the innkeepers of the Riviera are proclaiming what their well-trained thermometers are doing for the comfort of the deluded multitude who seek warmth and clear skies in one of the most treacherous and unsatisfactory climates in the world.

I visited Philæ a few days since and found a well-known artist, Mr. Henry Bacon, busily engaged in recording in color his final impressions of such portions of the island's architectural beauties as yet remain above water.

The fact that his native servant killed a fair-sized cobra within a very few feet of his easel caused him only a momentary distraction—for the steadily rising water had already covered the foundations and lower walls of every building except the temple of Isis, and time was precious.

The final submersion will leave the floor of the temple about two feet above water, and everything which has been under water will be shapeless when it is drawn off,—a mass of Nile mud. Tourists are now rowed into the Kiosk, and there is very fair fishing in the Birth House!

Cholera is a thing of the past, and a few days will bring the usual travelers to the Land of the Pharaohs.

Very truly yours,

F. GORDON MORRILL, M.D.

Obituary.

MAJOR JAMES CUSHING MERRILL, U. S. A.

MAJOR JAMES CUSHING MERRILL, a well-known army surgeon and ornithologist, died at his home in Washington, D. C., on Oct. 27, 1902. He was born in Cambridge, Mass., in 1845; graduated at Harvard, and took his medical degree in 1874 at the University of Pennsylvania. As assistant surgeon in the army he served for many years in various parts of the West,—on the Texas-Mexican frontier, in Oregon, Montana and what is now Oklahoma. It was during this period that he carried out his extended study of birds and fauna. For many years his name was familiar in American ornithological literature, and his contributions, especially those in the Smithsonian Reports, are of distinct interest and importance.

A keen observer and a trained naturalist, Dr. Merrill was also an enthusiastic sportsman, and showed much spirit and resourcefulness in the pursuit of big game.

The last five years of his life were spent as librarian in the surgeon-general's office in Washington. He was associated with Dr. Fletcher on the Index Catalogue. At this time ill-health led gradually to his adopting a secluded mode of life. Naturally extremely modest and reticent about his own achievements, he was a genial, kindly man, an accomplished linguist, a trained scientist and an eminent naturalist.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 10, 1903.

CITIES.	Population Estimated, 1900.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Scarlet fever.
New York . .	3,785,156	1,320	331	21.66	12.42	3.4 8	.52	.33
Chicago . .	1,935,270	635	161	25.12	9.44	1.76	4.64	2.56
Philadelphia .	1,378,527	553	127	16.29	19.54	1.99	3.34	.72
St. Louis . .	618,481	—	—	—	—	—	—	—
Baltimore . .	538,712	217	54	20.27	17.97	.92	1.84	—
Cleveland . .	427,731	—	—	—	—	—	—	—
Buffalo . .	387,994	—	—	—	—	—	—	—
Pittsburg . .	351,745	146	31	23.28	23.98	3.43	6.84	1.38
Cincinnati . .	335,140	—	—	—	—	—	—	—
Milwaukee . .	315,307	—	—	—	—	—	—	—
Washington .	295,103	—	—	—	—	—	—	—
Providence . .	191,230	90	24	20.00	15.55	9.22	2.22	—
Boston . .	608,163	335	60	21.70	19.14	1.70	—	1.70
Worcester . .	182,044	38	16	6.06	18.18	8.03	—	—
Fall River . .	115,549	55	24	14.40	14.40	1.80	—	—
Lowell . .	101,958	48	20	2.65	32.55	—	—	2.32
Cambridge . .	96,639	23	6	30.43	26.09	—	—	—
Lynn . .	72,497	10	4	30.00	—	—	—	—
Lawrence . .	69,768	30	12	33.33	16.67	16.67	—	3.33
Springfield .	69,889	23	5	17.39	4.34	—	4.34	—
Somerville . .	68,110	29	7	20.69	20.69	—	10.34	3.45
New Bedford .	67,198	38	12	18.42	18.42	—	2.63	13.15
Holyoke . .	49,286	9	8	—	44.44	—	—	—
Brockton . .	44,873	5	1	40.00	—	—	—	—
Haverhill . .	42,104	10	1	10.00	50.00	—	10.00	—
Newton . .	37,794	6	1	—	33.33	—	—	—
Salem . .	36,876	—	—	—	—	—	—	—
Malden . .	36,288	13	5	15.42	7.70	—	—	—
Chelsea . .	35,876	21	5	19.05	19.05	—	—	—
Fitchburg . .	35,069	7	3	—	14.30	—	—	—
Taunton . .	33,656	16	4	12.50	18.75	—	—	6.35
Everett . .	23,620	5	4	—	—	—	—	—
North Adams .	27,863	4	1	25.00	—	—	—	—
Gloucester . .	26,121	—	—	—	—	—	—	—
Quincy . .	26,043	10	2	20.00	—	—	—	—
Waltham . .	25,198	8	—	—	12.50	—	—	—
Brookline . .	22,808	—	—	—	—	—	—	—
Pittsfield . .	22,589	8	—	—	37.50	—	—	—
Chicopee . .	21,081	6	4	50.00	16.67	—	—	33.33
Medford . .	20,963	5	1	—	—	—	—	—
Northampton .	19,883	8	2	12.50	—	12.50	—	—
Beverly . .	15,802	5	—	—	—	—	—	—
Clinton . .	15,161	4	1	25.00	25.00	25.00	—	—
Leominster . .	14,806	—	—	—	—	—	—	—
Newburyport .	14,478	8	2	12.50	—	—	—	—
Woburn . .	14,300	—	—	—	—	—	—	—
Hyde Park . .	14,175	—	—	—	—	—	—	—
Adams . .	13,745	—	—	—	—	—	—	—
Attleboro . .	13,677	—	—	—	—	—	—	—
Marlboro . .	13,609	—	—	—	—	—	—	—
Melrose . .	13,600	4	—	50.00	50.00	—	—	—
Westfield . .	13,418	5	1	40.00	20.00	40.00	—	—
Milford . .	13,129	—	—	—	—	—	—	—
Revere . .	12,722	2	1	—	—	—	—	—
Framingham .	12,584	3	2	—	—	—	—	—
Peabody . .	12,179	—	—	—	—	—	—	—
Gardner . .	11,928	—	—	—	—	—	—	—
Weymouth . .	11,844	7	1	42.90	28.60	—	—	—
Southbridge .	11,268	—	—	—	—	—	—	—
Watertown . .	11,077	2	—	—	50.00	—	—	—
Plymouth . .	10,730	—	—	—	—	—	—	—

Deaths reported, 3,650; under five years of age, 939; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 756, acute lung diseases 637, consumption 368, scarlet fever 43, whooping cough 46, cerebrospinal meningitis 7, smallpox 5, erysipelas 7, measles 18, typhoid fever 76, diarrheal diseases 69, diphtheria and croup 94.

From whooping cough, New York 10, Chicago 10, Philadelphia 6, Baltimore 2, Pittsburg 3, Providence 5, Boston 3, Cambridge 2, Worcester, Lynn, Springfield, North Adams and Quincy 1 each. From erysipelas, Chicago 3, Baltimore 1, Boston 1, Somerville 1, Taunton 1. From smallpox, Pittsburg 1, Boston 3, Lynn 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,880, for the week ending Dec. 27, the death-rate was 16.9. Deaths reported, 4,826; acute diseases of the respiratory organs (London) 409, whooping cough 91, diphtheria 76, measles 159, smallpox 11, scarlet fever 63.

The death-rate ranged from 4.8 in Horney to 26.6 in Merthyn Tydfil; London 16.6, West Ham 15.0, Brighton 13.0, Portsmouth 13.3, Southampton 12.1, Plymouth 13.7, Bristol 17.0, Birmingham 16.3, Leicester 12.5, Nottingham 17.6, Bolton 18.3, Manchester 18.6, Salford 19.3, Bradford 19.2, Leeds 16.1, Hull 22.5, New Castle-on-Tyne 16.9, Cardiff 18.5, Rhondda 21.8, Liverpool 21.8, Wallasey 21.3, Newport (Mon.) 21.2.

METEOROLOGICAL RECORD

For the week ending Jan. 10, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Ba- rom- eter.		Ther- mometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S. . 4	29.60	38	42	35	66	63	64	W	NW	9	8	C.	O.	0
M. . 5	29.78	36	40	33	58	58	58	W	SW	9	7	C.	O.	0
T. . 6	29.54	32	38	27	88	100	94	S	NW	8	11	R.	N.	.38
W. . 7	29.46	27	36	18	71	98	84	W	SE	11	8	C.	N.	.02
T. . 8	29.28	28	38	19	82	46	64	W	NW	6	14	C.	O.	.01
F. . 9	29.60	14	19	10	62	58	58	NW	SW	7	15	C.	O.	0
S. . 10	30.01	20	27	14	53	51	52	W	SW	12	12	C.	C.	0
Wk.	29.61		34	22		68								.41

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
Wk. Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 15, 1903.

WHITE, J. H., assistant surgeon-general. To proceed to Brunswick, Ga., for special temporary duty. Jan. 13, 1903.
 CARTER, H. R., surgeon. Leave of absence for three days under paragraph 179 of the regulations, amended so that it shall be for two days only.
 GUITERAS, G. M., passed assistant surgeon. To report to chairman of board of examiners at Washington, D. C., Jan. 15, 1903, for examination to determine his fitness for promotion to the grade of surgeon. Jan. 13, 1903.
 OAKLEY, J. H., passed assistant surgeon. Granted leave of absence for two days from Jan. 21. Jan. 13, 1903.
 LAVINDER, C. H., passed assistant surgeon. Granted leave of absence for one month from Jan. 28. Jan. 13, 1903.
 DUKE, B. F., acting assistant surgeon. Granted leave of absence for ten days from Jan. 4. Jan. 7, 1903.
 WALKLEY, W. S., acting assistant surgeon. Granted leave of absence for five days from Jan. 13. Jan. 10, 1903.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDED JAN. 17.

H. H. HAAS, passed assistant surgeon. Ordered home via "Prairie."
 J. E. PAGE, passed assistant surgeon. Detached from the "Newark" and ordered to the "Montgomery."
 R. E. LEDBETTER, assistant surgeon. Detached from the "Illinois" and ordered to the "Newark."
 F. L. BENTON, passed assistant surgeon. Detached from recruiting duty, and ordered to Washington to accompany Battalion of Marines to the Philippines, Jan. 24.
 R. L. TAYLOR, W. P. KEENE, D. P. MCCORD and W. H. JANNEY, doctors. Appointed acting assistant surgeons for three years' service.
 C. A. CRAWFORD, passed assistant surgeon. Resignation accepted to take effect Jan. 12, 1903.
 R. B. CHAPMAN, H. W. JUDD, J. T. MILLER and R. A. CAMPBELL, doctors. Appointed acting assistant surgeons for three years' service.
 D. P. MCCORD, acting assistant surgeon. Ordered to Lansing, Mich., on duty with recruiting party.
 R. L. TAYLOR, acting assistant surgeon. Ordered to Ogden, Utah, for duty with recruiting party.
 W. H. BUCHER, passed assistant surgeon. Detached from Naval Hospital, Norfolk, Va., and ordered to Naval Hospital, Pensacola, Fla.
 F. T. GORDON, pharmacist. Ordered to the Naval Dispensary, Washington, D. C.

APPOINTMENT.

EDMUND D. CODMAN, Esq., has been appointed a trustee of the Boston City Hospital.

LECTURES ON THE NEUROSIS AND PSYCHIASIS OF SPIRITS AND DRUG ADDICTIONS.

Dr. T. D. Crothers of Hartford, Conn., will deliver a course of lectures on "Alcoholism, Morphism and Other Drug Manias," in the hall of the New York School of Clinical Medicine, 328 West Forty-second Street, between Eighth and Ninth avenues. These lectures will be given on the first Tuesday of every month at 11 A.M. and 8 P.M. The profession is cordially invited to attend.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the society will be held in Sprague Hall, Medical Library Building on Monday, Jan. 26, 1903, at 8.15. Statement by the president regarding the future of the society. Discussion. Report of the treasurer; election of officers.

ARTHUR K. STONE, M.D., Secretary,
 543 Boylston Street.

HARVARD UNIVERSITY MEDICAL SCHOOL.—At a meeting of the president and fellows of Harvard College, Jan. 12, 1903, it was voted to appoint Melville Forrest Rogers, D.M.D., instructor in operative dentistry.

Voted to appoint Wilder Tlestone, M.D., assistant in chemistry for the second half of 1902-1903.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The ninety-seventh annual meeting of the society will be held Jan. 27, 28 and 29, 1903, in the City Hall, Albany, commencing at 9.15 A.M. on the 27th and ending at 1 P.M. on the 30th.

Business Committee: Ernest Wendt, Chairman, 471 Delaware Ave., Buffalo; Hamilton D. Wey, Elmira; J. Montgomery Mosher, Albany.

RECENT DEATHS.

DR. MARCUS K. GOLDSMITH of New York died on Jan. 16, at the age of fifty-five years. He was graduated from the medical department of the University of the City of New York in 1885.

DR. HILBERT B. TINGLEY, a prominent physician of Rockaway Beach, Borough of Queens, New York, was killed at the Holland Station of the Long Island Railroad, Jan. 14. While attempting to board a train his foot slipped and he was thrown beneath the wheels. Dr. Tingley was graduated from the University of Baltimore in 1889, and was thirty-seven years old. He was president of the Rockaway Taxpayers' Association.

CHARLES EDMUND CHASE, M.D., M.M.S.S., died in Woburn, Dec. 26, 1902, aged fifty-three years.

WILLIAM H. HILDRETH, M.D., died Jan. 15, in Newton, after a short illness. He was a graduate of Dartmouth College, and has lived in Newton since 1870. He retired from practice about five years ago.

BOOKS AND PAMPHLETS RECEIVED.

Simultaneous Paretic Mydriasis. Subluxation of the Lens and Rupture of the Choroid, with Marked Involvement of the Retina; and a Peculiar Form of Persistent Pupillary Membrane. By Alexander Duane, M.D., of New York. Reprint. 1902.

Some Considerations on the Hygienic and Prophylactic Treatment of Myopia. By Alexander Duane, M.D., of New York. Reprint. 1902.

A Report on Radio-Therapy. By Thomas L. Butler, M.D., of Louisville, Ky. Reprint. 1902.

The Treatment of Corneal Infiltrations by Iodine-Vasogen. By Alexander Duane, M.D., of New York. Reprint. 1902.

Studies from Institute for Medical Research, Federated Malay States. The Malarial Fevers of British Malaya. By Hamilton Wright, M.D. Vol. I, No. 1. Philadelphia: P. Blakiston's Son & Co. 1902.

Transactions of the American Surgical Association. Edited by Richard H. Harte, M.D. Vol. XX.

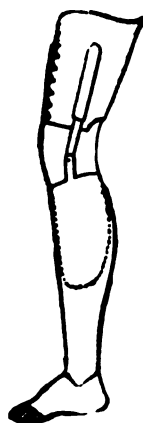
Cancer and Other Tumors of the Stomach. By Samuel Fenwick, M.D., F.R.C.P., and W. Soltau Fenwick, M.D. (Lond.). M.R.C.P. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1903.

A System of Physiologic Therapeutics, a Practical Exposition of the Methods, Other than Drug-giving, Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D. Vol. V. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1903.

Le Remède Typhique dans la Fièvre Typhoïde. By Dr. Julio Mendez. Reprint. Buenos Aires. 1902.

Cancer of the Larynx Cured by X-rays. By W. Scheppegrell, A.M., M.D., of New Orleans, La. Reprint. 1902.

The Practical Medicine Series of Year Books, comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly under the General Editorial Charge of Gustavus P. Head, M.D. Vol. III. December, 1902. Illustrated. Chicago: The Year Book Publishers.



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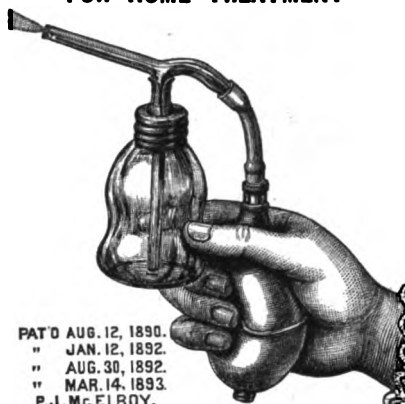
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Instructors in the Medical School are members of the medical and surgical staff of these institutions. Teaching will be conducted in small classes and under the personal direction of the heads of the departments. The courses will be mostly of eight weeks' duration, and the practitioner will be able during a brief residence to take several of them. Those desiring to study a specialty may pursue long, continuous courses in any single branch at reduced rates. All fees are payable at the Medical School to the Secretary. A graduate of another recognized Medical School may obtain the degree of M.D. from the University after a year's study in the undergraduates' course and after passing all the required examinations in undergraduate work. These examinations may be taken only at the times set for the regular examinations in September, February and June. A certificate of attendance will be furnished when desired.

The following are the Courses provided in the Graduate Department for 1902-1903.

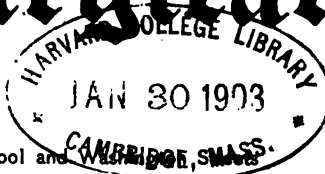
No.	Subject.	Instructor.	Place.	Time.	Fee.
1	Anatomy of the Joints	Dr. Dwight	Medical School	Special *	\$25
2	Dissection Courses	Dr. J. Warren	Medical School	After Nov. 1	20
3	Special Anatom. Instruction	Dr. Dwight	Medical School	Special *	Special *
4	Histology and Microscopy	Dr. F. T. Lewis	Medical School	Feb.	25
5	Elem. Human Embryology	Drs. Bremer and Woods	Medical School	Feb.—June	25
6	Advanced Embryology	Drs. Minot, Bremer, Lewis	Medical School	Feb.—June	75
7	Physiology	Dr. W. T. Porter	Medical School	Special *	Special *
8	Toxicology and Medico-Legal Examination of Blood	Dr. Wood	Medical School	Oct.—Jan.	30
9	Clinical Examination of Urine	Drs. Wood and Emerson	Medical School	Oct.—Jan.	30
10	Clinical Haematology and Examination of Gastric Contents	Dr. Hewes	Medical School	Oct.—Jan.	30
11	Physiological Chemistry	Dr. Pfaff	Medical School	Special *	Special *
12	Path. and Phys. Chemistry	Dr. Emerson	Med. Sch. or Boston City H.	Special *	Special *
13	Bacteriology	Dr. Ernst	Medical School	Special *	25
14	Practical Pathology	Dr. Councilman	Medical School	Special *	30-50
15	Pathological Histology	Dr. Councilman	Medical School	Special *	30
16	Pathological Anatomy	Dr. Magrath	Medical School	Special *	25
17	Neuropathology	Dr. Taylor	Medical School	Special *	25
18	Advanced Neuropathology	Dr. Taylor	Medical School	Special *	75-125
19	Surgical Pathology	Dr. Nichols	Medical School	April	25
20	Diagnosis of New Growths	Dr. Whitney	Mass. General Hospital	Special *	15
21	Comparative Pathology	Dr. Smith	Bussey Institution	Oct.—June	Special
22	Clinical Medicine	Dr. Vickery	Mass. General Hospital	Oct.	15
23	Clinical Diagnosis	Dr. J. M. Jackson	Mass. General Hospital	Nov.—Feb.	15
24	Infectious Diseases	Dr. McCollom	Boston City Hospital	Oct., Nov.	25
25	Intubation	Dr. McCollom	Boston City Hospital	Special *	25
26	Sputum Analysis	Dr. W. H. Smith	Mass. General Hospital	Nov., Dec., Jan.	15
27	Clinical Medicine	Dr. Joslin	Boston City Hospital	April—May	25
28	Surgical Research			Special	Special
29	Special Surgical Work			Special	Special
30	Minor Surgery	Dr. Lund	Boston City Hospital	April—May	20
31	Minor Surgery	Dr. J. B. Blake	Boston City Hospital	Nov.—May	20
32	Clinical and Operative Surgery	Drs. Warren, Porter, Beach	Mass. General Hospital	Oct.—Feb.	30
33	Clinical Surgery	Dr. M. H. Richardson	Mass. General Hospital	Feb., May	
34	Clinical Surgery	Dr. Mumford	Mass. General Hospital	Feb., March, April, May	25
35	Minor Surgery	Dr. Mumford	Mass. General Hospital	Oct.—Jan.	25
36	Clinical, Operative, Genito-urinary, Pathological and Minor Surgery	Drs. Monks and Thorndike	Boston City Hospital	Oct., Nov., Jan., Feb	25
37	Clinical and Operative Surgery	Drs. Munro and Lund	Boston City Hospital	Oct., Nov.	25
38	Genito-Urinary Surgery	Dr. Thorndike	Boston City Hospital	Oct.—Nov.	25
39	Fractures	Dr. Scudder	Mass. General Hospital	Oct., Nov.	30
40	Surgical Diagnosis	Dr. Scudder	Mass. General Hospital	Nov.—Dec.	20
41	Genito-Urinary Surgery	Dr. Scudder	Mass. General Hospital	Jan.—Feb.	30
42	After Treatment	Dr. Scudder	Mass. General Hospital	Feb., March	20
43	Genito-Urinary Surgery	Dr. Watson	Boston City Hospital	April, May	20
44	Surgical Diagnosis	Dr. C. A. Porter	Mass. General Hospital	Oct.—Jan.	15
45	Minor Surgery	Dr. Balch	Mass. General Hospital	Feb., March	20
46	Minor Surgery	Dr. Balch	Mass. General Hospital	April, May	20
47	Clinical and Operative Surgery	Dr. Cobb	Mass. General Hospital	Oct.—Nov.	30
48	Orthopedic Surgery	Dr. Bradford	Children's Hospital	Nov.	10
49	Clinical Obstetrics	Dr. W. L. Richardson	Boston Lying-in Hospital	Nov.—Jan., May—June	25
50	Clinical Obstetrics	Dr. C. M. Green	Boston Lying-in Hospital	Feb., March, April	25
51	Clinical Obstetrics	Dr. Higgins	Boston Lying-in Hospital	Oct.	25
52	Clinical Obstetrics	Drs. Newell, Swain, and Friedman	Boston Lying-in Hospital	Oct.—May	25
53	Operative Obstetrics	Dr. C. M. Green	Medical School	Special *	25
54	Operative Obstetrics	Dr. Higgins	Medical School	Special *	25
55	Gynecology	Dr. Haven	Boston City Hospital	Jan., Feb., March	25
56	Gynecology	Dr. C. M. Green	Boston City Hospital	Oct., Nov., Dec.	25
57	Gynecology	Dr. Storer	Carney Hospital	Oct., Nov., Dec., April, May, June	25
58	Gynecology	Dr. Storer	Boston Dispensary	Jan., Feb., March	25
59	Gynecology	Dr. Storer	St. Elizabeth's Hospital	April, May, June	25
60	Operative Gynecology	Dr. Davenport	Medical School	Special *	25
61	Pediatrics	Dr. Craigin	Children's Hospital	Oct., Nov.	20
62	Pediatrics	Dr. Craigin	Children's Hospital	Nov., Dec.	20
63	Pediatrics	Dr. Buckingham	Children's Hospital	Jan., Feb.	20
64	Pediatrics	Dr. Morse	Infants' Hospital	April, May	20
65	Pediatrics	Dr. Morse	Infants' Hospital	March, April	20
66	Dermatology	Dr. Bowen	Mass. General Hospital	Oct.—June	25
67	Syphilis	Dr. Post	Boston Dispensary	April, May, June	25
68	Advanced Neurology	Dr. Putnam	Mass. General Hospital	Special *	Special *
69	Neurology	Dr. Knapp	Boston City Hospital	Feb., March	20
70	Neurology	Dr. Knapp	Boston City Hospital	April, May	20
71	Neurology	Dr. Walton	Mass. General Hospital	March—April	20
72	Psychiatry	Dr. Cowles	McLean Hospital	Special *	25
73	Otology	Dr. Crockett	Eye and Ear Infirmary	Feb.—April	25
74	Otology	Dr. Hammond	Eye and Ear Infirmary	Nov.—Jan.	25
75	Anatomy of the Ear	Dr. Hammond	Medical School	Special *	25
76	Clinical Ophthalmology	Dr. Wadsworth	Eye and Ear Infirmary	Feb., March	25
77	Ophthalmology	Dr. Standish	Eye and Ear Infirmary	April	25
78	Ophthalmology	Dr. Quackenbush	Eye and Ear Infirmary	Oct.—Nov.	20
79	Ophthalmology	Dr. Jack	Eye and Ear Infirmary	Oct.—Nov.	20
80	Rhinology and Laryngology	Dr. DeBlois	Boston City Hospital	Jan., Feb., March	20
81	Rhinology and Laryngology	Dr. Farlow	Boston City Hospital	April, May	20
82	Rhinology and Laryngology	Dr. Coolidge	Mass. General Hospital	Feb., March	20
83	Hygiene	Dr. Harrington	Medical School	Special *	35
84	Disinfection	Dr. Harrington	Medical School	Special *	20
85	Analysis of water, food, etc.	Dr. Harrington	Medical School	Special *	20
86	Pharmacology	Drs. Pfaff and Vejux-Tyrodé	Medical School	Special *	Special *

* To be arranged with instructor.

† Women admitted.

‡ Women admitted conditionally.

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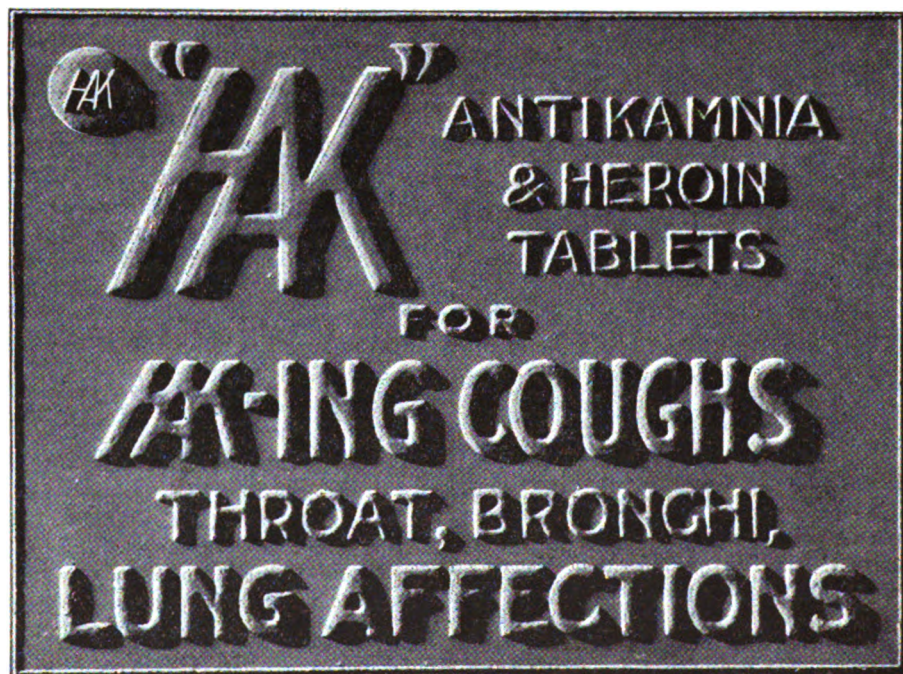
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Original Articles.

CHYLOUS ASCITES. REPORT OF A CASE DUE TO TOTAL OCCLUSION OF THE THORACIC DUCT.¹

BY PERLEY F. COMEY, M.D., WORCESTER, MASS.

PATHOLOGY

BY WM. W. MCKIBBEN, M.D., WORCESTER, MASS.

The patient, Mr. A. F. P., age sixty-one, retired manufacturer, family history excellent, well built, exceedingly healthy man. His illnesses had been very few indeed for a man of his years; had smallpox many years ago and a broken leg later. About four years ago he had an attack of renal colic due to calculi; otherwise well.

The history of the present trouble began the 18th of March, 1902. He had a chill, severe pain in the right groin and leg, high fever, ached all over, stomach disturbed, and the whole system seemed affected. In a day or so, the right limb began to swell, became reddened, and had a cakey feel. The inflammatory condition extended on to the abdomen and across to the other side; also across the back and loins, but not to the other limb. It resembled a general infection with localized cellulitis, and it seemed as though the process would go on to suppuration. My diagnosis was phlebitis.

In a few days the fever and all symptoms of inflammation began to subside and the patient was more comfortable, but the swelling and slight fever remained for perhaps a week. The patient continued to improve, was free from pain, had a good appetite and digestion; was confined to bed, practically because of the swelling of the limb.

On the night of the 5th of April, he had a sudden, severe attack of dyspnea, pain and distress in the region of the heart, and presented the symptoms of violent interference with the circulation which was relieved only by a hypodermic medication, and suggested to my mind that the trouble arose from the phlebitis, embolism, or thrombus. This passed off, however, the disturbance diminishing in severity for several days. His general condition improved, he was up and about the house, and by April 27 rode out about town considerably. The right leg remained swollen exceedingly, but with no other trouble to the patient than the inconvenience of its being so large and not easily handled.

About June 1 he had a second attack, practically the same as the one in March. Chills, fever, general condition, same extension of the cellulitis except that at this time it extended up to the left shoulder and down the arm to the elbow; also affected the left leg some. During this attack, he had one spell of dyspnea and heart failure. This attack did not last as long or seem as severe, and in a short time he was up and round the house again. Later he rode out and seemed to be doing well. Dr. S. B. Woodward saw him during this second attack.

About July 20 he had the third attack, and while it was not nearly as severe as the others, he grew worse, — the edema became general, his appetite

began to fail, he did not sit up much and was obliged to lie in one position. Dr. Homer Gage saw him in this attack.

He became more and more bloated, very uncomfortable, had hard nights, finally his breathing became very labored, the abdominal dropsy so extensive that I tapped him August 18, and to my surprise instead of the usual serous fluid that we expect to find, it seemed to be pure chyle, about seven quarts in amount.

I left the opening so that it might drain, which it did very freely, the nurse estimating that in this manner about four quarts escaped in the twenty-four hours. This discharged up to the time of his death, four weeks later, Sept. 14. Dr. Woodward saw him after the tapping.

During his illness, the urine was analyzed several times, but always proved normal, although the twenty-four amount was greatly diminished. A blood count was made with negative result. The chylous fluid drawn from the abdomen was thoroughly analyzed by Dr. McKibben. The patient died Sept. 14, having been ill six months. A postmortem was performed by Dr. McKibben; Dr. S. B. Woodward, Dr. Homer Gage and myself present. The result of the analysis of the fluid drawn from the abdomen, also the report of the autopsy, follows.

POSTMORTEM EXAMINATION.

Body that of a male of sixty-one years of age, with slender development of skeleton and poor general nutrition; skin sallow, elastic in places, edematous in other places, pitting markedly on pressure. This edema, with enlargement, was especially marked on the right leg and left arm; less so on the left leg. The right arm was greatly atrophied. Sero-sanguinous fluid was exuding from a small puncture below the umbilicus.

There was no hypostasis of blood nor diffusion of blood coloring matter; nor was there any greenish discoloration of abdomen. Postmortem rigidity very marked in the legs; less so in the other muscles; condition of the pupils and color of sclera normal.

The thorax presented nothing striking in size and shape. The abdomen was distended, and pitted on pressure. The penis showed no scar. The scrotum was glossy, edematous and enlarged.

On opening the abdominal cavity, it was found to be about half full of bloody fluid, through which gas freely escaped from nicks in the bowels, made by the undertaker in drawing off the ascitic fluid. A half-dozen nicks were seen on the small intestine. Following the course of the intestinal tract up from the rectum, no evidence of malignant disease presented itself in the intestine, stomach or esophagus.

The renal and peritoneal lymph plexuses were enlarged, those of the intestines (including both large and small) being flexuous in their courses, constricted at intervals, and presenting a beaded or varicose appearance.

The appendix appeared normal, but contained four or five hard fecal concretions. The mesenteric lymph nodes were not enlarged. The diaphragm was pressed down by pleuritic fluid on the left to the sixth rib.

On opening the pleural cavity, the left was found

¹ Read before the Massachusetts Medical Society, Worcester District, Dec. 10, 1902.

completely filled with straw-colored fluid, and no lung could be seen. The lung was found collapsed and bound tightly to the upper and posterior wall by firm fibrous bands of adhesions, which could not be torn, but had to be cut.

The right lung was normally distended with air, and was adherent by small adhesions at both apex and base. This pleural cavity contained about a pint of straw-colored fluid. Cut sections of both lungs showed marked edema, frothy serum oozing freely.

The left lung also showed hypostatic congestion, while at its apex were about a half-dozen small nodules with centers of white powdered material and walls of denser fibrous tissue, mixed with lime salts (calcareous).

On opening the pericardium, it was found to be normal in color, smooth, and showed no adhesions. The sac contained about 75 cc. of clear, light-colored fluid.

The position, size and shape of the heart were normal. The right ventricle and both auricles were distended with blood clots. The left ventricle was contracted and empty. Each valve, examined in turn, showed nothing abnormal, nor did the coronary arteries. There was no abnormal deposit of adipose tissue.

Spleen.—Capsule, trabeculae, blood vessels, lymph nodules showed nothing abnormal. The pulp was soft and easily scraped off with a knife. The size was somewhat increased.

There was no distention nor contraction nor ulceration of the intestines; no injection of the blood vessels nor thickening of the wall; no adhesions nor exudations.

Cross sections of the pancreas showed nothing abnormal.

The liver weighed about 1,800 grms., was tawny yellow in color; the consistency was markedly increased. In sectioning, the knife met resistance, and gave a grating sensation. The cut surface showed multitudinous granules, the size of a pin head.

The kidneys were of about normal size and consistency. On section they were of a dull bluish red, with relative proportion of cortex to pyramids, and thickness of each, normal. On stripping off the capsules there was no adhesion. The surface showed two or three cysts, the size of a pea.

The adrenals appeared normal. The renal lymph plexuses were enlarged.

The thoracic duct was much enlarged, which made its discovery much less difficult than usual. It gave a feeling of induration to the fingers. The lymph glands and vessels failed to reveal the presence of parasites. The superficial lymphatics on being cut down upon showed very little thickening of their walls and induration of the surrounding cellular tissue macroscopically.

HISTOLOGICAL REPORT.

Post-mesenteric lymph glands; bronchial lymph glands.—Even macroscopically they show a marked deviation from the normal. When opened, the gland presents a dry, brownish colored substance which has no definite structure; crumbles easily and has the odor of feces. Microscopic examination of same shows necrosis and degeneration so com-

plete that no semblance of gland substance remains, making it absolutely functionless.

Thoracic duct.—Macroscopically the wall is much thickened; will not admit probe in any part. Receptaculum chyli prominent. Microscopic sections made at many different levels, cross and longitudinal, all of which showed a marked fibrous thickening of the wall, in many places the fibrous replacing the muscular tissue, and totally occluded the duct at almost all levels. Diagnosis of thoracic duct is chronic lymphangitis.

Lung.—Microscopically shows fibrous hepatization, so much change in the structure having taken place that no alveoli remain.

Spleen.—Chronic passive congestion.

Liver.—No cirrhosis, no increase in the interstitial tissue, but chronic passive congestion, and in some places had undergone fatty degeneration in areas.

Kidneys.—Show no pathological change of note.

This case is reported because of the interesting points revealed by the postmortem examination, the little knowledge on the subject, the small amount of literature in French, German or English, and the great rarity of the case, particularly from an etiological point of view.

From 1699 up to the present time, there have been collected just 47 cases, but in only 37 of these was the fluid strictly chyle. In the other ten the fluid more resembled a morbid exudation than an effusion of chyle. In three of these the ascites was ascribed to obstructed pulmonary circulation, one of which had suffered for a long time with chronic bronchitis, with "purulent expectoration containing tubercular concretions"; another suffered for several years with scrofular affections and died of pulmonary tuberculosis; and the third died of pulmonary and peritoneal tuberculosis. The puerperal and tuberculous cases with exudation, together with a chylous cyst of the mesentery and a case of chyle retention in the lymphatics of the mesentery being excluded, the cases of chylous ascites proper number 37. The rupture of some chyle-conveying vessels is clearly established in 25 of these cases.

Etiology.—Age, sex, climate, race, occupation and circumstances of life are without influence. According to Busey, heredity and acquired tendency to disease of the lymphatic system, and especially diseases of the walls of the thoracic duct and receptaculum, which are very rare and mainly limited to tuberculous infiltration and to ossific changes, demand mention as primary conditions which may facilitate the rupture of the walls of chyle-conveying vessels; syphilis may also. Primary rupture occurred in but seven of the cases. In one, the cause was an effort to raise a burden; in two, muscular effort; one, vomiting; three, violence inflicted upon the chest. Chronic alcoholism and overwork, according to Nancrede, certainly appears to favor the graver forms of lymphangitis.

Busey asserts that chylous ascites may be the secondary result of a variety of morbid conditions, which directly or remotely obstruct the flow of chyle through the lacteals, receptaculum or thoracic duct, impedes its exit into the left subclavian vein, right side of the heart, or lesser circulation. Such obstruction may be caused by anatomical defects and anomalies of position and distribution of the chyle

vessels; by dilatation or stenosis, and such diseases of the coats of the channels as would lessen their expansibility and tensile strength; by disease of the mesentery, hypertrophy, cavernous and fibroid transformation of its adipose tissue; by indurated, degenerated and impermeable mesentery glands, embolism and deposit of bony, fibrous, chalky, gelatinous and soapy material in the channels; compression by inflammatory adhesions, or by thoracic abdominal and aneurismal tumors. In one case it was ascribed to the presence of filaria.

Dilated chyloferous lymphatics, as in Dr. Comey's case, are quite often observed in the mesentery. The usual cause, according to Zeigler, is obstruction due to inflammatory or neoplastic growths, located in the mesentery or thoracic duct. Sometimes the obstruction is due to lymph thrombosis. The dilated vessels look like straight cylindrical ridges, or convoluted, saccular or beaded cords; their contents are either white and limpid, or pulpy and caseous.

Clinical observations seem to have established the causal relation of interrupted blood current in the large veins near the heart to lymph stasis and effusion of chyle into the peritoneal cavity, and the experiments of Cooper, Morton, Dupreytren and others demonstrate that complete arrest or interruption of the current of the fluid in the thoracic duct, at or near its terminal extremity, will, if the anastomotic circulation is not speedily and sufficiently established, produce distention, dilatation and repletion sufficient to cause rupture, which most frequently takes place in the receptaculum or lacteals. Clinical and postmortem examinations are even more conclusive than experimentation, for they connect directly the process of gradual occlusion of the duct by disease with the concurrent development of the diffuse area of lymphangiectasis, which in some cases terminated in rupture and extravasation. In this connection may be cited the cases reported by Rokitsky, Ormerod, Morton, Hughes and Cayley.

According to the "American Textbook of Pathology," obstruction of the thoracic duct results from,—

- (a) Pressure on the duct from without by tumors, enlarged lymph glands or aneurisms.
- (b) The growth of tumors in the walls of the duct.
- (c) Inflammatory stricture. We regard this as the cause of obstruction in the case at hand.
- (d) The impaction of adult filaria.
- (e) Thrombosis of the left innominate vein or the duct itself.
- (f) The backward pressure of blood in the subclavian vein occasioned by tricuspid insufficiency.

The results of obstruction of the main lymphatic trunk are variable. In many instances, especially when the obstruction is in the lower part of the duct, the establishment of a collateral circulation averts serious consequences. If, for any reason, the latter fails to compensate, then extensive lymphangiectasis may follow or the chyle may escape either by transudation, as it did in Dr. Comey's case, or by actual rupture of the thoracic duct. The free chyle may infiltrate the tissues, or may collect in one of the serous sacs constituting, in the peritoneum, chylous ascites, or in the pleural sac, chylothorax.

In seven cases the fluid found in the peritoneal cavity was associated with tuberculosis. They were reported as cases of milky or oily ascites, and their clinical histories picture the ordinary symptomatology of either pulmonary or peritoneal tuberculosis.

Symptoms and diagnosis.—These depend upon the location and extent of the extravasation; thus, a patient of Krabbel died on the fifth day, from compression of the lung by an extensive chylothorax. Clinical reports furnish many cases which illustrate the direct relation as cause and effect which subsists between copious losses of lymph and chyle, and the marked depression, dullness and exhaustion which invariably follow abundant lymphorrhagiæ, and which likewise follow artificial occlusion of the thoracic duct, and so distinctly characterize the brief after-life of the animal, thus permanently deprived of nutritive material. With but rare exception, quoting Busey again, the cases of copious loss of lymph have been attended with great exhaustion. The latter class may by rest, arrest of the lymphorrhagiæ and proper alimentation, recuperate to suffer again, and perhaps many recurrences similar in course, duration and effect; but copious and continuous loss of chyle is inevitably fatal. It is not possible to establish any constant and direct relation between the appetite and the obliteration, perforation or rupture of the chyle-conveying vessels. It lacks uniformity, sometimes diminished, sometimes variable and again voracious, even in the same patient, but is uniformly associated with progressive emaciation, quite often with fever of the hectic type and gastro-intestinal disorder, with white and chalky stools. In the case reported by Poncy, from July 16, 1699, to March 4, 1700, the date of patient's death, 289 pints of fluid had been drawn in 22 tapplings. The evacuated fluid was always chylous, and frequently emitted the odor of articles of diet. In this patient there was progressive emaciation and waste of all the tissues of the body. In Eyer's case, 1891, where the chylous fluid flowed constantly from an abdominal fistula, there was inanition of four pounds a day, and his entire loss much exceeded one half his normal body weight. Death occurred in thirty-eight days from date of accident, of inanition, or twenty-two days from beginning of lymphorrhagia. It is estimated to take twenty to twenty-four days to starve an adult with all food withdrawn. The symptomatology of effusion of chyle into the peritoneal cavity is not sufficiently distinctive to differentiate such cases from those of ordinary ascites. Wounds of the chyle-conveying vessels might be diagnosticated by the location and direction of a stab or puncture in connection with the escape of chyle into the peritoneal or pleural cavities, or externally through the aperture or its evacuation. As such effusion can only occur through transudation or solution of continuity, its escape externally or presence in either cavity must be essential for differential diagnosis. If no fluid escapes externally, then only symptoms of a fluid accumulation in the cavity are present, the character of which must be ascertained by evacuation and examination.

When there are symptoms of rapid accumulation of fluid in the peritoneal cavity, associated with sudden loss of appetite, acute emaciation and

anemia, rapid prostration, diminished secretion of urine, and the presence of such conditions as would suggest occlusion, stenosis or compression of the thoracic duct, or arrest of the exit of the chyle into the subclavian vein, then the diagnosis should be suggested. The gradual, partial and progressive compression of the thoracic duct has been frequently determined by the location of a tumor, associated with the evidence of blood impoverishment. In uncomplicated cases due to rupture the patient usually after exertion is suddenly seized with sharp localized pains followed by swelling of the abdomen, anuria, anorexia, nausea and possibly vomiting. In most cases the symptoms are complicated with those of the causative conditions, and a diagnosis is only possible by an examination of the evacuated fluid. In no instance has a diagnosis been made previous to the observation of the fluid.

Prognosis.—Of the 47 tabulated cases, 31 died, 11 recovered, and in five cases the result is not stated. There is no instance of the preservation of the life of an animal beyond a limited number of days, in which the communication of the lymphatic with the venous system had been completely and permanently obliterated.

The clinical details point to two conclusions: First, that a free and unobstructed channel of communication between the venous system and chyle-conveying vessels is essential to the proper nutrition of the body and to the preservation of life. Second, that death follows the partial or complete obliteration of this communication as the result of inanition.

Nature of the effused fluid.—In most of the cases of effusion into the pleural and peritoneal cavities the fluid was chyle, which had escaped from chyle-conveying channels. In the cases of milk-like, fatty and oily fluid, found in the peritoneal cavity, the character of the fluid was the result of co-existing degenerative processes.

The fluid may contain blood, cholesterolin, more or less of the common serous exudations, and some inflammatory products. The chylous effusions are rich in solid matter, albumen, fatty matters, sodium chloride, and sometimes contain bile, sugar, phosphoric acid, lime and other undetermined substances; also pus and blood.

Widal and Merklen in *La Presse Médicale*, 1900, say: "The particular point of this article is that leucocytes with a single nucleus is the only characteristic of lymph." These were noted in the specimens submitted by Dr. Comey, Aug. 19, and had very pronounced ameboid movement. A few oil drops could be seen on the protoplasm of the chyle corpuscles; an occasional normal blood globule was also noted. The base of this milky fluid, under the microscope, appeared as extremely minute granules, so minute that they could not be recognized as fatty globules. This granular matter could be dissolved in ether, and on evaporating the ether, drops of oil remained. No filaria were present; nor were there any present in fresh or stained specimens of blood taken at night. Blood serum, agar and bouillon inoculated with the ascitic fluid gave no growths.

A complete chemical analysis of one liter of chylous ascitic fluid;—

Reaction.	Neutral.
Specific gravity,	1010.
Dry extract,	21 grms.
Total albuminoids,	9.75.
Fibrinogen,	Absent.
Mucin or nucleo alb.,	Absent.
Peptones,	Present.
Sugar,	Present.
Uric Acid,	Absent.
Urea,	1.28.
Total min. matter,	8.
Fat,	1.45.

Blood examination showed no leucocytosis, but a diminution in the number of reds and in the hemoglobin. No filaria were found in the urine examined April 8, it being normal in color, acid, specific gravity 1014, no sediment, 28 grms. urea to 14 oz. urine, Diazo negative. May 10, Dr. Comey submitted another specimen: Color normal; specific gravity 1020; odor urinous; chlorine diminished, albumen and sugar absent; bile, pigment absent, sediment; calcium oxalate crystals.

Treatment of chylous ascites.—Tapping was the treatment resorted to in most of the reported cases and was sometimes repeated. Seven cases recovered. In two cases laparotomy was resorted to, with recovery of both patients. One was a case of an intact retention cyst, and the other was probably a ruptured cyst. In the case of congenital cyst, recovery took place after several tapplings. In one of the cases of recovery, rupture of the umbilicus occurred with spontaneous evacuation of the fluid. The frequent resort to paracentesis was manifestly due to a mistaken diagnosis. As a medical resource, Busey considers its value as questionable. He regards the peritoneum as an enormous absorbing surface, which, in cases of moderate effusion, unaccompanied with tension of the abdominal walls, might prove adequate for the reabsorption of the effused chyle and lymph. In cases of large accumulation, with its consecutive disturbances of the circulation and respiration, relief of the distention by the evacuation of the fluid would be imperative, as it was in the present case, but it does not seem wise to empty the cavity completely of the nutritive fluid absorbable through such a vast area of lymphatic apparatus. The fluid should not all be withdrawn, and the operation should be repeated only when made necessary by the distention.

The treatment has mainly been directed to the prolongation of life, and Murphy suggests that in cases due to rupture of the chyle duct, it should be rest in bed with light diet of such foods as are digested and absorbed by the stomach, given in small quantities, at short intervals, and a restricted quantity of water and other liquids, the object being to prevent distention of the ruptured ends of the lacteals and the formation of a coagulum. This, together with a general tonic plan of treatment, has apparently proved successful in at least two cases and has certainly prolonged life in other cases. In the case of cyst and benign tumors, surgical procedure might offer a prospect of cure. In filarial cases, death of the adult worm is the only hope of permanent relief; this happens occasionally, but cannot be brought about by treatment.

Résumé.—Knowing as we do that acute and

CASES OF EFFUSION AND ACCUMULATION OF CHYLE AND CHYLELIKE MILKY, FATTY AND OILY FLUIDS IN THE ABDOMINAL CAVITY.

No.	Reporter.	Date.	Where Published.	Sex.	Age.	Causative Conditions.	Treatment.	Result.
1	Poney, Jr.	1699	Saviard Observations in Surgery, p. 247	F	Girl	Obstruction of lymphatic glands and vessels	Medicines & tapping	Died
2	E. Morton	1705	Morton's Phthiologia	M	2 yrs	Compression of duct near subclavian vein by large tumor, producing rupture of lacteals	Tapping	"
3	Chomel	1738	Mem. de l'Académie Royale des Sciences	F	24 yrs	Childbed, rupture at omt., 5 pts. milky fluid escaped	Counter opening	Recovery
4	J. G. Scherb	1729	Haller, Dissertation Abmorb., iii, p. 237	M	39 yrs	Calculus in Receptaculum Chyli	Tapping	Died
5	Donald Monroe	1765	Essay on Dropsy	F	Girl	Effort to raise a burden.	"	Not stated
6	Bossu	1770	Journ. de Med. Chir. Pharm. xxxiv, p. 233	F		Met. of mammary secretion during first week of puerperium	Medicines & tapping	Recovery
7	Martin	1770	Journ. de Med. Chir. Pharm. xxxiv, p. 553	F		Metrorrhagia, miscarriage, unusual exercise	Tapping	"
8	Milleret	1774	Journ. de Med. Chir. Pharm. xlii, p. 257	F	39 yrs	Arrest of secretion of milk from mammary glands and intestinal canal	Discharge at omt.; tonics	"
9	Ed. Sandifort	1781	Observ. Anat. Pathology, judg. Bat. iv, 1-21, 3 Pl.	F		Premature birth of twins	Found at autopsy	Died
10	Percival	1788	Essays Med. Physiol. and Exp., II, p. 177	F	8 yrs	Rupture of lacteal vessels, protracted illness	Tapping	Recovery
11	Weaver	1814	Med. Surg. & Pharm. Rep., II, p. 377	M		Supposed to be liver disease	Medicines	Died
12	Truman, Abell	1833	Boet. Med. & Surg. Journ., vii, p. 13	F		Abdominal tumor following pregnancy with twins	Rupture at navel	"
13	Hughes	1841	Guy's Hospital Reports, v, p. 297	M	20 yrs	Tumor of mesenteric glands, lacteals large and tortuous	Not stated	"
14	Van Camp	1843	Ann. Soc. de Med. de Anvers, III, 85	M	59 yrs	Chronic bronchitis, asthma, tuberculosis	"	"
15	J. Popham	1854	Dublin Quart. Journ. Med., xviii, p. 467	F	28 yrs	Chronic peritonitis with fat in effusion, fatty degen. liver, fat free in blood	"	"
16	M. Lorain	1859	Compt. Rend. Soc. de Biol., Par. 3, s. v., 163	F	8 yrs	Symptoms of T. B. peritonitis, numerous tubercles in lungs	"	"
17	T. Stevenson	1860	Guy's Hospital Reports, 3, s. xvii, p. 231	F		Milky fluid obtained from abdomen	"	Not stated
18	Rokitansky	1861	Pathological Anatomy, Bd. II, s. 588	F	62 yrs	Occlusion of thoracic duct with soapy material	"	Died
19	Ormerod	1866	Trans. Path. Society of London, xvii, p. 163	M	19 yrs	Partial obstruction of duct near its termination	"	"
20	W. Coyley	1868	Trans. Path. Society of London, xix, p. 199	M	24 yrs	Left subclavian vein plugged with ragged clot	Tapping	"
21	Hopper-Seyler	1873	Arch. Gesamte Phys., vii, p. 407			Rupture of chyle vessels from pressure of a tumor	Not stated	"
22	Bergeret	1873	Journ. d'Anatomie, T. ix, p. 586	F	27 yrs	Scrofula, pulmonary tubercle, oily ascites	"	"
23	Wilhelm	1875	Corres. Blat. der Aerzt. Verein Rheh., No. 14, s. 13		2 mos	Abdominal tumor, causing rupture of thoracic duct	Tapping	"
24	Quincke	1875	Archiv. f. klin. Med., Bd. xvi, s. 128	F	30 yrs	Obst. of duct due to inf. thickenings of ureters, adipose changes to C. T.	"	"
25	"	1875	Ibid., s. 191	M	50 yrs	Traumatic rupture of duct, effusion into peritoneal and pleural cavities	"	"
26	Ballman	1875	Centralbl. f. d. Med. Wissensch. xiv, s. 375	F		Chylous fluid vomited found in peritoneal and pleural cavities	"	Recovery
27	Pelletier	1876	Journ. de Med. Chir. Pharm. lxxviii, p. 496	F	39 yrs	Peritoneum studded closely with tubercles	"	Died
28	F. Winckel	1876	Archiv. f. klin. Med., Bd. xvii, s. 308	F	39 yrs	Puncture of chyle vessels by parasites	"	Not stated
29	Wintharter	1877	Jahrbuch d. Kinderheilkunde, vol. xi, Nos. 2-3	F	Birth	Rupture of cong. chylous cyst	"	Recovery
30	H. Smedt	1890-1	Zeitschrift klin. Med., p. 199	M	11 yrs	Ascites following infectious diseases	"	Died
31	Kein	1890-1	Mem. Soc. de Med. de Straasburg, xix	F	50 yrs	Rupture of mesenteric and lymphatic lacteals	"	Not stated
32	Vell	1882	Paris Theses, No. 31, 1882	F	25 yrs	Syphilis	"	Died
33	Letulle	1884	Rev. de Med., iv, p. 733	M	8 yrs	Rheumatism in heart	"	"
34	F. Nickerson	1884	Mass. Med. Soc., June, 1884	M	55 yrs	Chylous cyst, hard labor	"	Recovery
35	Letulle	1885	Rev. de Med., p. 960	M	8 mos	Chron. peritonitis, cong. cardiopathy	"	"
36	Whitlo	1885	British Med. Journ., vi	M	13 yrs	Pul. tuberculosis, tub. peritonitis	"	Died
37	M. I. Straus	1886	Archiv. de Physiologie, Norm. et Path., xvii, p. 367	M	61 yrs	General exhaustion	"	"
38	P. I. Murray	1886	Monograph	F	19 yrs	Violence, long walks & dancing	Laparotomy	Recovery
39	N. B. Carson	1888	Med. News, iv, p. 52	M	39 yrs	Chylous cyst of mes.	"	"
40	Weichselbaum	18-	Virch. Archiv., lxi, p. 145	M	80 yrs	Stasis caused by interposed adipose tissue	Autopsy	Died
41	M. E. Gaucher			M	47 yrs	Alcoholism	Tapping	Not stated
42				M	39 yrs	Alcoholism, cirrhosis	"	"
43				Child	11 yrs	Sarcoma of omentum	Not stated	Died
44	Alvin Eyer	1891	N. Y. Med. Rec., xl, 122-124	M	23 yrs	Traumatic rupture of receptaculum chyle	Tapped	"
45	H. Senator	1895	Charete Ann. Ber., xx, 263-74			Carcinoma thoracic duct	"	"
46	H. Groom	1900	Lancet, London, June 30, March 31	F	39 yrs	Carcinoma of mes. glands	"	"
47	Comey and McKibben	1908	Boston Med. & Surg. Journ.	M	61 yrs	Ch. lymphangitis thoracic duct	"	"

chronic inflammations of the lymphatic vessels are almost never a primary disease but always result from inflammation of the surrounding tissues or parts drained by the affected vessels, some cause outside of the thoracic duct must be found to explain the case at hand. This cause is attributed to the old tubercular focus at the left apex, where a half dozen nodules were found which had undergone caseous and calcareous degeneration, and were surrounded by thick fibrous walls. This fibrous tissue had so developed in the surrounding pulmonary tissue that no semblance of alveoli were to be found. The process had not stopped here, but the two lobes, compressed so that together they were no larger than the two fists, were so tightly bound down to the upper and posterior pleural wall by firm, fibrous adhesions that the lung could not be torn out; but had to be cut, this producing a loud grating noise. The thoracic duct winds directly around the left apex as it comes from behind the esophagus at the seventh cervical vertebra, and comes outward to empty into the left subclavian vein. What an enormous process this fibroid degeneration was can be recognized by the sections taken at a dozen different levels where it is seen that the densest fibroid deposit is in the lumen of the duct as well as in the walls themselves, where occasionally, when a few muscular fibers are left, as one section shows very prettily, the fibrous tissue is seen deposited in between these fibers.

The "American Textbook of Pathology," after describing acute lymphangitis as swelling of the intima, proliferation and desquamation of the endothelial cells and an infiltration of the walls, and often of the surrounding tissues, — perilymphangitis, — with round cells, speaks of the coagulation of lymph with a formation of a thrombus as of frequent occurrence; that slight attacks often end in resolution, but that in severe septic cases the thrombus softens, the vessel ruptures, and the neighboring parts become infiltrated with pus. Then it adds: "Occasionally the process ends in fibroid thickening of the coats of the vessel with partial or complete obliteration of its lumen. This is called chronic lymphangitis."

This condition of chronic lymphangitis involved a whole foot and a half of ductus thoracicus in Dr. Comey's case. The dozen sections show fibrous occlusion of the lumen in them all.

The German writers make mention of the fact that pulmonary tuberculosis begins at some period in life in about 50% of all individuals; in most cases without the knowledge of the individual himself. One is struck on seeing a large number of autopsies by the fact that the visceral pleura is adherent to the parietal pleura in such a large number of the cases, and without any previous history of pleurisy.

"At the present day there is no longer doubt that a tubercular process may be brought to a standstill for many years and also even completely healed by the tubercular focus being surrounded by indurated connective tissue, making the spread of the tubercle bacilli more difficult. If the disease has started in the lungs, the extension first follows in the lymph channels, and in this way after a time without exception the peribronchial lymph glands, and frequently the visceral pleura, become involved.

From the latter the costal pleura can become infected. If an eruption takes place of miliary nodules formed by reabsorption, the process is called miliary tubercular lymphangitis." — Ziegler.

The extension of tuberculosis from the primary focus of infection is usually affected through the lymph channel, and in some instances the vessels themselves are involved in transmitting the disease. In tubercular ulceration of the intestines, miliary tubercles are frequently found in the serous coat along the lymphatics, which run to the nearest mesenteric glands. Tubercular lesions of the skin and subcutaneous tissue are sometimes associated with tubercular lymphangitis. The invasion of the thoracic duct by tubercles may lead to a general infection.

It is an interesting fact that all the parts drained by the thoracic duct were filled with fluid, edematous, pitting markedly on pressure. This was so of both legs, abdominal cavity, left thorax and left arm, while the parts drained by the right lymphatic duct were not so affected, the right arm being greatly atrophied. It was not surprising that last spring there should have been acute lymphangitis of the lymphatics of both legs, due to backing up and disturbance of the lymphatic circulation, when lymph thrombi were formed. This acute lymphangitis very closely resembles phlebitis, according to Widal.

LESIONS OF THE TIBIAL TUBERCLE OCCURRING DURING ADOLESCENCE.

BY ROBERT B. OSGOOD, M.D., BOSTON.

(1) INTRODUCTION.

FRACTURES of the tubercle of the tibia have for many years been recognized and have been considered almost as curiosities. The reported cases are nearly all those of fracture and marked separation, and are undoubtedly rare. There are, however, other lesions representing less severe forms of injury to the tubercle. These are interesting because they have apparently been seldom recognized and because of their comparatively frequent occurrence; because of the old difficulty of diagnosis and our present simple and accurate means, and because of their relation to the development of the tubercle.

(2) DEVELOPMENT OF THE TUBERCLE.

The tubercle of the tibia develops ordinarily from the upper epiphysis of the tibia by the ossification of a tongue-like process extending downwards over the anterior surface of the diaphysis. Rarely there is a separate center of ossification for the tubercle which then develops as a separate epiphysis uniting with the upper epiphysis during the latter portion of adolescence.

Henke describes a cartilaginous plate, existing in the newborn and throughout early life, lying in front of the epiphysis and diaphysis of the upper end of the tibia. In a dissection of the knee of the newborn I have found this plate apparently a part of the cartilage of the upper epiphysis. Prof. Thomas Dwight of the Harvard Medical School has allowed me to study his specimens of human fetuses prepared by Dr. E. B. Young after a Ger-

man method. By the action of certain chemical solutions the flesh is rendered transparent and the bone centers and cartilaginous epiphyses opaque. In these the upper epiphysis is seen to consist of a superior portion, corresponding to the contour of the future tibial head, and a tonguelike process extending downward anteriorly over the diaphysis.

It seems probable, therefore, that the ossification of the tibial tubercle usually begins about the age of puberty. Ordinarily it represents a downward extension in the cartilage, of the ossifying center for the tibial head. Sometimes the epiphysis at the upper end of the tibia has two separate centers of ossification, one in the head proper and the other in the tonguelike process which later forms the tubercle, the two uniting soon after puberty.

Fig. 1 shows the shadow of the above-mentioned plate; Fig. 2, the tubercle developing as a separate bone center, and 3 as a tonguelike prolongation from the upper epiphysis.

(3) ANATOMY OF THE TUBERCLE DURING ADOLESCENCE.

If in the light of the development, the anatomy of the tubercle of the tibia in early adolescence is studied, it will be seen that the conditions are favorable for just the form of injuries to be described.

To the tip of a tonguelike process of bone, or to a separate bone center, is attached the tendon of one of the most powerful muscle groups in the body. This tongue or bone center is at the age at which the lesions occur separated from the strong shaft of bone by a layer of cartilage, and the first strain of the contraction of the quadriceps transmitted by the patella tendon comes on the tibial tubercle.

(4) REPORT OF DISSECTIONS AND EXPERIMENTS.

Morris and several other anatomists, in describing the insertion of the quadriceps, mention two strong aponeurotic expansions of the tendon which pass down on either side of the patella tendon, are inserted into this and into the two rough oblique lines on the shaft of the tibia, extending from the tubercle obliquely upwards as far as the internal and external lateral ligaments.

To more fully understand the anatomical conditions and the transmission of the forces exerted by the sudden powerful contraction of the quadriceps extensor, dissections of two adult knees have been made.

Dissection 1. — By the ordinary crucial incisions, the skin and the subcutaneous tissues were dissected back and the deep fascia exposed. From each side of the quadriceps, just above its insertion into the patella, were found dense shining tendinous fibers arranged in several connected columns. These passed down on each side of the patella, were inserted slightly into this and the patella tendon, but for the most part were attached firmly to the oblique lines of the tibia above described for about one and one-half inches. These were freed from their attachments to the bone and periosteum. They were found to be only loosely attached to the underlying structures and of considerable thickness and great strength.

Dissection 2. — In a second knee the skin and subcutaneous tissues were dissected back in a similar manner to Dissection 1, and the same dense bands found. The dissection was then carried upwards and the quadriceps muscle isolated. Traction upon this extended the knee, and the strain appeared to be taken first by the patella tendon, almost immediately followed by a tightening of these bands of accessory tendons.

With a chisel, the tibial tubercle was then fractured, leaving the patella tendon still attached to it. The few fibers of the tendon continued below the tubercle, and the slight insertion into the tendon of the above-mentioned lateral expansions were divided; the patella tendon was now isolated well above the deep bursa.

The conditions were now analogous to a complete fracture of the tubercle, and a detachment of the patella tendon from its point of pull.

The knee was flexed, and barely a quarter of an inch separation of the tubercle from its original situation occurred. The tubercle was then replaced and held loosely in position. By traction on the isolated quadriceps it was found that the knee could be practically fully extended without any difficulty, and that about one fourth of an inch displacement of the tubercle occurred. The first pull was transmitted mainly to the patella tendon and tubercle, and when that had yielded barely one fourth of an inch, it was adequately taken by the lateral expansions of the tendon of the quadriceps. The dissection made evident the strength of these expansions and their ability to act as tendons of insertion with a detached patella tendon, and also the fact that the knee could readily be extended with the attachment of the patella tendon gone.

(5) LESIONS OF THE TUBERCLE.

We come now to lesions of the tubercle occurring during adolescence. These consist in a solution of continuity between the tubercle and the tibial shaft. They vary in severity from a complete avulsion of the tubercle to a slight separation of the epiphysis. The symptoms, often mistaken for a fractured patella, a dislocated semilunar cartilage or any of the less acute joint irritations, may represent loss of function varying from complete inability to extend the leg to a slight pain in the region of the tubercle on violent contraction of the quadriceps extensor.

(A) *Complete fracture or avulsion.* — In 1853 De Morgan and A. Shaw both reported cases of fracture of the tibial tubercle due to muscular action, but De Morgan's case was in a so-called scrofulous, poorly developed person, and Shaw's occurred in a boy whose patella was ankylosed.

In 1869 Dr. Paul Vogt reported the first case on record of typical fracture of the tibial tubercle. This case is so typical of the class of subjects and the method of production of this form of lesion that an abstract of it is given.

A thin, muscular boy, sixteen years old, exercising in the gymnasium, slipped from a jumping board and gave a sudden muscular jerk backward to prevent himself from falling. He felt immediate acute pain in the right knee, and could not step or move the leg forward.

The physical examination showed a marked effu-

sion into the joint. The right patella was drawn up higher than the left, and 6 cm. below its lower edge, in which no change could be felt, was a bony knob covered by tense skin, movable and resting 2 cm. from the tibial crest. On movement crepitus could be elicited. By strongly pushing downwards on the patella, this fragment could be made to approach the tibial crest. After the effusion had subsided under appropriate treatment, attempts to completely replace the fragment were still unsuccessful. Firm fibrous union finally occurred, and though slight lateral motion was still possible a good functional result was obtained.

The diagnosis was made of a fracture of the tibial tubercle. The inferior portion of the tubercle was supposed to have been wholly torn off, the upper part still adhering to the tibial epiphysis.

(1) *Etiology*.—There are about twelve cases reported of this injury. With one or two exceptions they have occurred in athletic youths during the adolescence and have been due to the violent contraction of the quadriceps extensor. The instinctive contraction of all those muscle groups tending to restore equilibrium in a threatened backward fall is usually associated. Fig. 4 represents this form of lesion.

This lesion may be produced more rarely by direct violence, the patient usually falling with the knee flexed on a hard surface. Paul Sender reports such a case in the *Deutsch. Zeitschrift für Chirurgie*, 1893.

(2) *Diagnosis*.—The clinical picture with the marked swelling and effusion which usually occur may well be mistaken for a fractured patella or even a dislocated semilunar cartilage. To-day, of course, the x-ray would at once reveal the true condition. We must suppose in these cases that the lateral expansions of the quadriceps tendon were ruptured.

(3) The conservative treatment of complete immobilization for six to eight weeks has uniformly brought about a return to practically normal function in the reported cases, even though the fragment is not completely restored to its old position. Ogilvie Will, mistaking an avulsion of the tubercle for a broken patella, operated upon a boy, and, discovering the true lesion replaced the tubercle, thrust his drill through the fragment into the tibial shaft and obtained quick union. The drill was removed in three weeks. He recommends operation.

(B) *Separation of a fragment*.—It would seem from the experimental dissections that the first pull in a violent contraction of the quadriceps extensor comes on the fibers of the patella tendon, and is then taken also by the lateral expansions of the tendon of the quadriceps. In the complete avulsions and fractures, as stated above, we must suppose these accessory tendons to be torn from their attachments together with the tubercle and the patella tendon. With these still "*in situ*" the displacement would be less than is shown by the clinical and x-ray examinations.

It is possible, however, to have a partial separation of the tubercle and the interference with normal function be so slight that the condition is often unrecognized and the diagnosis made of a bursitis or a periostitis, or even a joint fringe (see Figs. 5, 6, 7, 8, 9). The x-ray evidence of this is appar-

ently indisputable and the clinical picture absolutely consistent with the true condition.

(1) *Clinical picture*.—These lesions occur in boys at or shortly after the age of puberty, when the epiphyseal growth is most rapid and a layer of cartilage intervenes between the epiphysis and the tibial shaft. In eight of the ten cases collected the boys were between fourteen and fifteen years of age; one was thirteen and the other sixteen. The boys were all active, athletic and well-developed muscularly. The histories and clinical pictures are very similar.

In the gymnasium, in running, in a football game, or in some athletic sport, the knee is "*strained*." This so-called strain is usually found on questioning to have been caused by the sudden violent extension of the leg; namely, by the strong contraction of the quadriceps. More rarely there is associated a fall on the flexed knee which would, of course, bring a sudden involuntary strain on the patella tendon, associated with trauma.

At the time of the injury there is felt acute pain in the knee referred to below the patella. There is often slight swelling, either general, or pretty definitely localized over the region of the tubercle. There is distinct tenderness at this point. The ability to use the leg is only slightly diminished, and the acute pain is soon replaced by a feeling of weakness on strong exertion. Sharp pain is present on violent extension or extreme flexion of the leg, and the patient usually consults the surgeon because of this pain, the annoying weakness and the continued localized swelling or tenderness.

The condition presents no complete loss of function, but a severe handicap to the active, athletic life which this class of patients wish to lead.

(2) *Diagnosis*.—In these cases the thing clinically which we must suppose to occur, and which the x-rays confirm, is that a violent contraction or sudden strain of the quadriceps extensor partially ruptures the cartilaginous union of the tongue-like prolongation of the upper epiphysis or the separate ossifying center. A portion of this may be torn away, as shown in Figs. 5, 7, 9, or perhaps the tongue may be simply separated to a variable extent, illustrated by Fig. 10.

Subsequent exertion of any kind, and sometimes the ordinary walking pull of the quadriceps, irritates the injured cartilage and gives rise to discomfort, until advice is sought or bony union at length takes place.

In two of the cases showing this lesion there had been no known wrench or trauma. The symptoms being the same as in the cases presenting recognized, definite trauma. A somewhat exaggerated separation, shown by the x-ray, in the symptomless leg, perhaps explained the susceptibility to the lesion. It must be very definitely borne in mind, however, that the normal adolescent tibial tubercle, when ossification is going on, often appears in the x-ray to be separated from the tibial crest. This is mentioned and illustrated by Dr. Robert Lovett in the *Philadelphia Medical Journal*, Jan. 6, 1900.

The precaution of taking both knees in exactly the same plane, and with the Crooke's tube focused over symmetrical points, must also be observed before the x-ray can be relied upon as final evidence of this injury.

Given, however, a strain of the knee, a more prominent and tender tubercle on the injured side and an x-ray taken in the same plane as the skiagraph of the normal knee, and showing a wider separation of the epiphysis, or an avulsion of a small portion, we may be reasonably sure of the diagnosis.

(3) *Treatment*.—The bursa directly above the tubercle and beneath the patella tendon in a small percentage of cases communicates directly with the joint. There may be enough bursitis set up to bring about a definite synovitis, for which complete immobilization may be necessary. Ordinarily treatment directed toward lessening the pull of the patella tendon and restricting motion is adequate for the relief of the symptoms. A tightly applied erisscross strapping of adhesive plaster extending around about two thirds of the circumference of the leg, and applied from perhaps one inch below the tubercle to one inch above the lower border of the patella, has proved a satisfactory method of accomplishing this end. This is renewed as it becomes loosened, perhaps every ten days, for about a month, and a flannel bandage worn for a few weeks after this.

(4) *Prognosis*.—The prognosis with treatment has been uniformly good as to relief of pain and restoration of function. A case in which the end result is shown in Fig. 11 had been treated unintelligently, because of failure to make the diagnosis, and the history has been one of considerable pain and annoyance, coupled with restricted exercise for a period of years.

(6) CONCLUSIONS.

The adolescent tibial tubercle, from its situation and mode of development, is susceptible to injuries, especially in athletic subjects. These lesions are usually caused by a violent contraction of the quadriceps extensor.

Fracture and complete avulsions of the tubercle are rare, cause loss of function, and are easily diagnosed, usually clinically and always by means of the x-ray.

Avulsions of a small portion and partial separation of the tubercle are more common. They do not cause complete loss of function, but without treatment, long continued serious annoyance. The diagnosis should be made by a combination of the clinical and x-ray pictures, and before the latter are accepted as evidence both knees should be skiagraphed and accurate technique observed.

PARTIAL BIBLIOGRAPHY.

- Deutsch. Chirurg., vol. xxvii, p. 105.
 Phil. Med. Journ., Jan. 6, 1900.
 Poland: Traumatic Separation of Epiphyses.
 Med. Times and Gazette, 1858, N.S., vol. vi.
 Patholog. Soc. Trans., 1858, vol. v, p. 253.
 Sajous Med. Ann., 1858, vol. ii., 267.
 Lansberg: Centralbl. de Chirurg., Sept. 23, 1869.
 Wien. Medicin. Blätter, 1861, 51.
 British Med. Journ., 1867, No. 1360.
 La Semaine Médicale, 1867, No. 18.
 Henke: Anatomie des Kindesalters, Tübingen, 1861.
 Anatomie Méd. Chirurg., Paris, 1866, p. 964.
 Deutsch. Zeitsch. f. Chirurg., 1893, vol. xxxvi, p. 546.
 Berliner Klin. Woch., p. 225, 1899.
 Traité pratique d'Anatomie Médico Chirurgicale, Paris, 1865.
 Beiträge zur Klin. Chirurg., Tübingen, 1897, vol. iii, p. 257.
 Handbuch der Allg. u. Speziell. Chirurg., von Pitha-Billroth, 1868, 4. vol. ii, Abthlg. 8. 268.
 Arch. Générales de Médecine, Paris, 1870, fol. 2.

THE SIDE CHAIN THEORY.¹

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RECENT studies of immunity are so interesting and so full of promise of helpfulness, and yet withal so hard to get hold of, that we who are far from being masters in pathology find plenty of reason for trying to make them clear to each other.

Organotherapy was at least easy to understand. Through the work of Horsley, Murray and others, the homely, old counsel, "Eat a part to strengthen a part" becomes, to a limited extent, a therapeutic principle. In myxedema the blood lacks something which the thyroid gland fails to furnish. Sheep's thyroids supply the lack. It is blood poverty, rather than blood infection; but whatever it is, Murray applies his theory, and for a time the patient ceases to be myxedematous. By a reversal of the usual sequence, a pathological condition is made clear by therapeutic means.

There was an appearance of simplicity, also, in the theory of antitoxin, as applied to tetanus and to diphtheria. Behring had isolated an antidote which neutralized the diphtheritic poison. If our theory about it has grown more complex, certainly time has not dimmed the glory of the fact.

Tetanus and diphtheria are local first, and toxic in a general sense afterwards. Their bacilli are known and their poisons can be isolated. When, however, effort was directed toward finding antitoxins for the exanthemata, whose bacilli are as yet unknown, and for tuberculosis, whose toxin refuses to react according to predetermined rules, pathologists encountered difficulties which we, in our ignorant expectation, failed to realize. The past five years have thrown to us much that is obscure and almost discouraging. Editorial contributors have written with easy familiarity about amboceptors and alexins and haptophoric groups. Ideas which are really illuminating have been buried in Greek derivatives and in clumsiness of statement. Little by little, however, theories concerning immunity have precipitated and clarified, so that we can see through a part of them and find suggestions which bewilder, not so much because they are intricate as because they are dazzling with promise of future insight and resource.

In studying the numerous diseases which are manifestly infectious and presumably bacterial, but in which there are, as yet, no recognized bacterial causes, we may be forced to rely upon unproven theory for a long time to come. Smallpox and syphilis are conspicuous examples of this class of diseases. As Lister himself has pointed out, the limit of possible improvement in the power of the microscope may be nearly or even fully reached already. If then, the bacterium of syphilis should chance to be smaller than the bacillus of influenza to the degree in which this bacillus exceeds in smallness the bacillus anthracis, it is improbable that the hypothecated bacterium of syphilis will ever be seen. Moreover, the virus of syphilis, familiar as it is clinically, cannot be made the subject of study by animal experimentation because

¹ Read at the Lister Club, Dec. 18, 1903.

animals other than man possess a natural immunity to syphilis.

And yet we look to pathologists to solve for us problems in artificial immunity, in diseases where it is equally unreasonable to expect either a solution by accident and observation, as was the case with smallpox, or by inductive reasoning and animal experimentation, as was the case with diphtheria.

Light came with the announcement of the so-called "Pfeiffer phenomenon" in 1894. Pfeiffer immunized a guinea pig against cholera in practically the same way that horses are immunized against diphtheria for the production of antitoxic serum, — by repeated injections of cholera cultures. The guinea pig being now immune against cholera, Pfeiffer injected into its peritoneal cavity living cholera vibrios. From time to time by means of glass capillary tubes he withdrew from the peritoneal cavity a small quantity of the exudation, and examined it in the hanging drop. Almost immediately the vibrios lost their motility. In ten minutes they had swollen up and in ten minutes more they had broken into little balls resembling micrococci, which, in another twenty minutes, had been completely lost in the peritoneal exudation. The immune serum had dissolved the bacilli. Pfeiffer had discovered bacteriolysis.

A direct outcome of the Pfeiffer phenomenon was what we know as the Widal test. Gruber of Vienna first observed the agglutination of typhoid bacilli; Widal employed this reaction for diagnostic purposes.

Agglutinins are separate and specific constituents of blood. During the agglutinating reaction, agglutinin is absorbed by the bacteria. This absorption may go on until the agglutinin is entirely used up. It is then possible to dissolve out the agglutinin from the bacteria by dilute alkalis, and after centrifugation, to use the fluid again for agglutinating specific bacteria. According to Buchner, cases have been observed in which the serum has shown distinct power of agglutination, yet no specific protective power.

Still further light was thrown upon agglutinins and bacteriolysins, by the discovery of the hemolytic action, which certain serums exert upon foreign blood. Bordet treated guinea pigs with repeated injections of defibrinated rabbit's blood. This led to the appearance in the serum of the guinea pig of an antibody capable of dissolving rabbit's red blood cells. This antibody is hemolysin, and the process of hemolysis is strikingly analogous to the dissolving of bacteria which constitutes bacteriolysis.

These processes, together with others which are concerned in the various phases of immunity, are outlined in a diagrammatic sort of way by the side chain theory of Ehrlich.

Ehrlich's theory has to do with the production of antibodies. Antibodies are produced only in the living organism. Antitoxin, for instance, cannot be made in a test tube. If we inoculate a dead, sterile, nutrient medium with germs, the number of germs of one kind which we introduce makes little difference. The germs keep on multiplying and eating their food until there is no more food to eat. But in the living body, resistance is more likely to be maintained, and recovery to result, if germs are

introduced in small numbers. It is this resistance which produces an antibody.

Suppose a toxin to be introduced or produced in the organism. When brought in contact with the protoplasm of a cell, the toxin does not become bound to the functioning center of the cell, but to certain side chains or receptors of the cell. The normal function of these receptors is to receive and appropriate food. The molecule of toxin, by its so-called haptophoric group, "catches on" to the side chains of the cell, and after a time (a part of the period of incubation), by the action of its toxophoric group, produces a defect in the cell. These side chains of the cell having been diverted from their function of attracting nutriment, the cell produces new side chains, — sometimes an excess, like the callus of fractured bone. The proliferated side chains have the same affinity for toxin, after they have been cast off by the cell, which they had before; and so, when present in the blood, they constitute an antitoxin.

And now comes an important distinction between the action of a toxin, like that, for instance, of diphtheria, and the action of a bacterium or a foreign blood cell. By direct affinity a molecule of toxin is attracted to the side chains of a cell; but neither a foreign blood corpuscle nor a bacterium can become so attracted, except through the mediation of another body, which acts as a sort of fixer, or mordant, or coupler, by means of which the cell ferment, which is normally present in protoplasm, is able to take part in the production of an antibody.

Ehrlich has shown that in hemolysis the fixer must be anchored to the invading red blood corpuscle. His experiment is as follows: Goat's serum is immunized against sheep's blood, so that the red corpuscles of the sheep are dissolved by the serum of the goat. Then a mixture of the two is heated to 56° C., with the result that no solution takes place. The activity of the cell ferment in the serum of the goat has been checked by heat. Normal, unimmunized goat serum is added, and activity returns: the sheep's corpuscles are again dissolved, because cell ferments are again present. A similar mixture is centrifugalized, and the sediment, consisting of the corpuscles, and the fluid, consisting of the serum, are tested separately. To the fluid, fresh sheep's corpuscles are added, but no reaction occurs; and fresh unimmunized goat serum containing cell ferment is added, but no reaction occurs, because no fixer is present in the fluid. To the sediment, normal serum is added, and complete solution results. The fixers had become anchored to the red cells, and until fixers were present, no reaction could take place.

The fixer in this case must have a twofold affinity, — one for the cell ferment of the host and one for the invading red blood corpuscle. Accordingly Ehrlich calls it an amboceptor. The amboceptor, as already stated, can act only in the presence of the ferment-like body, which is normally present in the protoplasm of the cell, which is easily altered by heat, and which Ehrlich has called the complement.

Besides amboceptor, the following names for the fixer have been used by different writers: preparative, sensitizer, immune body, intermediary body,

desmon. The cell ferment is also known as end body, complement, cytase and alexin.

Most serums contain a variety of cell ferments, which are, as a rule, specific. Normal unimmunized goat's serum can dissolve both guinea pig's blood cells and rabbit's blood cells; but if normal goat's serum is passed through a Pukal's filter, the filtrate can still dissolve guinea pig's blood cells, but its power towards rabbit's blood cells is greatly diminished; that is, the cell ferment in goat's serum which is specifically active towards rabbit's blood is kept back in the filter, while the cell ferment specific towards guinea pig's blood passes through the filter.

The discovery of the presence of specific precipitins in the blood of each species of animal has given us a biological test of recognized medico-legal value—in the hands of experts.

Until recently it has been supposed that snake venom is a poison of the type of diphtheritic toxin, in that it consists of a single body. Venom is normally secreted in the snake by glands analogous to the parotid. The addition of venom to fresh blood of higher animals quickly dissolves the red corpuscles. Sewall Calmette and Fraser, by successive inoculations of snake venom, have produced antivenins which are both protective and curative.

It is now discovered, through the investigations of Flexner and Noguchi, that venom toxin is able to act only through the aid of both fixers and cell ferments. If venom be added to fresh corpuscles which have been washed with isotonic salt solution, so as to remove the cell ferments, the corpuscles are agglutinated but not dissolved. If now a little fresh serum which contains cell ferments is added, the corpuscles are promptly dissolved.

Venom is therefore a body of the type of hemolysins rather than simple toxins. It requires for its activity the presence of fixers which are contained in the venom, and of cell ferments which are normally present in the cells of the victim. Welch's comment upon this discovery, in his Huxley lecture delivered in London last October, is as follows: "That snake-venom should contain only one half of the complete poison, the other and really destructive half being widely distributed in the blood and cells of man and of animals, is an instance of a curious kind of adaptation, of interest from evolutionary as well as from other points of view."

It appears, moreover, that the organism is not only an unexploded potential of self-injury; it is also a mine of self-protection. Wassermann has found that the central nervous system normally contains a substance identical with tetanus antitoxin. He has made an emulsion of fresh tissue from the brain and spinal cord of a guinea pig, and has found that this emulsion is capable of neutralizing the lethal dose of tetanus toxin.

This would seem to show that the presence of antitoxin is not invariably, or at least always discernibly, due to previous introduction of toxin. A condition like this may be one of the forms of natural immunity. Another explanation of natural immunity is absence of side chains having affinity for a given toxin. In such a case, the source of production of a toxin may sometimes be checked by the development of a bacteriolysin.

Explained or unexplained, natural immunity is a

conspicuous fact. A horse, for instance, is two hundred thousand times more susceptible to tetanus than a hen, the amount of tetanus toxin per gram of body weight required to kill a horse being one unit, and to kill a hen 200,000 units. The natural immunity of special tissues finds illustration in the protective agency of skin and mucous membrane. Poisons which are virulent in sub-cutaneous tissue are harmless in the mouth.

No artificial cultivation of special side chains has yet succeeded in producing an immunity so thorough as that which is the result of a previous attack of the special disease itself. Even when immunizing sera shall have become more numerous and more efficient, protests of the anti-vaccinationist type will still be heard, and questions of expediency which are reasonable will also continue to arise. Inoculations against typhoid may be advisable for a soldier about to begin a campaign in South Africa, although inexpedient for the average citizen. The morphine fiend and the arsenic eater of Styria may justly receive a larger measure of disapprobation than is deserved by the faithful boy in his efforts to acquire immunity against tobacco.

Perhaps our ideas of artificial immunity need to be broadened all along the line. Metchnikoff, in his recent book, speaks of a psychical immunity and an immunity which consists in acquired indifference to disagreeable noises, lights and shocks.

Bacteria and red blood corpuscles are not the only foreign cells which have power to develop specialized immune sera. We hear of the employment of immunizing methods for the production of spermotoxins, neurotoxins and nephrotoxins. Within a few months Veit has published results of experiments which seem to show that albuminuria of pregnancy is produced by a lysin called into being by the presence of the placenta.

The injection of Koch's old tuberculin, which disappointed us so sorely as a therapeutic agent, resembles perhaps Act II in the Pfeiffer phenomenon, rather than Act I: the bacilli in the lung produce a half-hearted immunity; injection of tuberculin merely excites reaction.

A reaction, however, is sometimes what we want. Witness, for instance, in certain affections of the joints, the benefit from arterial hyperemia produced locally by hot air. We believe that leucocytes are healers of wounds and absorbers of catgut. Cocci have been thought to aid in checking a slow infection, as when an intercurrent erysipelas has hastened the healing of a tuberculous lung. Even normal salt solution is believed to assist the forces of resistance. Wassermann has recently shown the value of diluting immune serum by the addition of normal serum. Cultures which produced death when combated with immune sera alone were resisted successfully when these same immune sera were fortified by normal serum. Wassermann ascribes this power to excess of normal cell ferments.

The affinities which side chains exhibit are something more than the ordinary positive and negative physico-chemical attractions, such as commonly appear among inorganic bodies. Ehrlich contends that every toxin, every parasitic bacterium and every variety of animal cell has its own specific affinity in side chains of the corporeal protoplasm; or, to state the same thing conversely, that the cells

of the animal body are endowed with separate, specific receptors, having affinities for every kind of invading cell or poison.

If this be granted, it is conceivable that under favoring conditions immunity may be established against anything. One has only to irritate the cell in the proper way, and it will furnish specific side chains for every irritant.

A conception like this is not only striking, it is refreshing. In our therapeutic routine we see so little action we can call specific that it seems good to find in nature such inflexible discrimination.

THE OPEN-AIR TREATMENT OF SYPHILIS.

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I NEVER remember having once seen the open-air treatment of syphilis advocated in any of the many journals of our own country or of other countries; and yet there is, I venture to think, no argument brought forward in favor of the open-air treatment of tuberculosis that is not equally to the point with regard to early syphilis. I suppose that there are a great many, medical men and others, who, because they have not thought about it, have an idea that the open air has some direct influence on the lung tissue in consumptives, just as, I find, there are very many who believe that the cold of these Alpine heights has direct effect on the lung tissue, and on the bacilli in it.

But a little thought will show them that it is not the influence of open air on the lungs which brings about the cure of pulmonary tuberculosis, but that it is the influence of the pure air and sunlight on the blood, and through it on all the other tissues of the body, and chiefly the nervous tissues, that the good results are obtained. Fresh air heightens metabolism in every way, and raises all the tissues to their highest point of resistance, so that they do not succumb to the persistent attacks of the poisons constantly carried hither and thither by the circulating blood.

The nervous system responds the most readily to the purer and richer pabulum brought to its inmost recesses by the blood, and as its cells are better nourished, so its trophic influence is maintained, and the metabolism and growth of all tissues, including the all-important hemopoietic, is ensured and maintained at its highest, and they are thus enabled either actively to beat off, or passively to refuse to succumb to, the specific poisons of any disease.

Open-air life improves the appetite, and again the additional food ingested improves the blood pabulum with the results referred to above. Carefully graduated exercise again increases the appetite and stimulates the emunctories, and helps the elimination of their excreta. Rest, much rest, carefully prescribed at suitable times and under correct conditions, again helps much. And if this can all be done away from home surroundings and worries, in a high, dry, bracing climate, with the purest possible air, with pleasant companions and environment, the greater will be the efficacy and permanency of the whole treatment.

Open air, then, rest, high feeding, graduated exercise and if possible a bright, dry, bracing climate, are our means for enabling an individual to escape the eventual horrors of consumption. But all and each of these are, in my opinion, as important in enabling the individual to escape the eventual horrors of syphilis (with the help of small doses of mercury maintained for many years).

The parallel is strict. The poison, — whether it be a bacillus or a ferment, an enzyme, a toxic-albumose, or we know not what, is there, — in the individual. It is somewhere in the system. It may be weak; it may be strong. Or the resisting power of the individual's tissues may be weak; or may be strong. Or the idiosyncrasy of the individual may be such as to render him well-nigh immune or particularly susceptible. The poison may be causing actual physical signs and symptoms, or it may be apparently latent, but powerful for evil, and perhaps gaining strength wherewith to strike with thuglike precision and force when long forgotten and least expected, and when inadvertently the unwary victim has laid himself open to attack by being run down through worry, overwork, or neglected ill-health.

It matters not whether the poison be the syphilitic or tubercular, — it may suddenly seize upon the lungs, larynx, nervous system or connective tissues. Surely if the open-air treatment is called for at the beginning for the one, it is equally so for the other, to avert the staggering consequences of the original infection. And yet I have never seen it advocated equally for both.

In syphilis, mercury undoubtedly does good. Probably until the last thirty years it has, I think, done more harm than good. It is not an antidote to the syphilitic poison any more than iodide of potassium is. It probably helps the tissues of the syphilitic, much as I find that arsenic sometimes seems to help the tissues of the tuberculous. I do not feel that it is a "specific," and Diday, whose work on the subject seems to me to carry much weight and conviction, certainly seems to teach the same.

During ten years in a busy practice in the university town of Cambridge, I saw many young men with early syphilis, and I often kept in touch with them for many years after they had gone down from the university. And one thing impressed me much; that whereas a poor, under-fed scholar, if infected, was hit painfully hard, the well-to-do hunting or athletic undergraduate generally suffered lightly. The latter led an open-air life, he ate meat three times a day, his tissues were well nourished, and therefore at a high resistance pitch. But the scholar, often poor, trying, because of the *res angustæ domi*, to live on his scholarship, who generally had porridge for breakfast, bread and jam for lunch, and a poor dinner in the hall, sometimes at a dreadful time of day, badly served and hastily eaten or left, he, I noticed, often suffered badly. And this, too, in spite of the fact that the sporting undergraduate was often very casual about taking his mercury. He very often, however, got off cheap, had but slight secondaries, and heard no more of his trouble. For, later on, he continued to live a well-fed, open-air life, often as a country gentleman, or in some other easy-going position in life.

I remember some ten years ago remarking on my observations to Sir George Humphry, before the "open-air treatment" had come to stay, and he said that throughout the enormous experience of fifty years' practice in Cambridge, he had always noticed the same thing, — that the well-fed sportsman, in spite of his being casual about his mercury, did not hear much of his trouble in the afterwards, and I remember his adding, "Ah! I used in the old days to salivate them to *pints* a day! — but they would n't stand it, and they seemed to do very well without." He remarked, too, how heavily the poor student often suffered, although he was conscientious and regular in taking his mercury. Perhaps he was given too much and became miserably ill with his throat and rash and aches and fever and early skin affections and horrible melancholia. I can think of four such now. One has spastic paraplegia and is living; another is dead of general paralysis of the insane; the third has locomotor ataxy, and the fourth is insane, also with ataxia, and I hope by this time dead. Three out of the four became fellows of their college.

If the athlete chronically poisons himself with alcohol, and leads a dissolute life (I mean when syphilitic), he comes to grief — but later on. I have seen six such cases within the last three years, — magnificently developed men and with grand records as athletes. One died of phthisis, the second of appendicitis (tubercular), the third of cerebral hemorrhage, the fourth of arterio-capillary sclerosis and kidneys, the fifth is just alive, and has phthisis, the sixth died of phthisis and chronic Bright's disease. They had all drunk hard, and had led unhealthy, town-loafing and dissolute lives. All the five died here in Davos, at or near forty years of age.

During five years' observation of patients in these high Alpine altitudes, I have come to the conclusion that 30% of the men patients here who have phthisis are syphilitics — and perhaps more. They are, as a rule, men of the upper middle class, who have led hard-working business lives. They are a type of case that clinically one can recognize, and their want of healthy carmine color, and their thin hair or baldness, lead one to suspect them. It is wonderful how this class of case improves here, if not too far gone. Mercury gently given certainly does them good. I notice that they are specially liable to ischiorectal abscess and fistula in ano, and to ear trouble and deafness, more so than other phthisical patients. They are generally between thirty and forty years of age, and though they yield quickly to treatment and improve much, they seldom are quite cured. *If only they had undergone a long open-air cure directly the character of their syphilitic infection was recognized, I believe they would not have had to come here for the open-air cure of their phthisis.*

I have asked many directors and assistants of sanatoria and hospitals on the Continent, and they have put the proportion of the syphilitics among the phthisical men as 30 and 40%, and twice lately I have been told 50%.

Dr. Klausé, assistant to Professor Koch, and chief of the phthisical wards at the Charité at Berlin, told me last month that fully 50% of the men were syphilitic. He also told me that when in charge

of the venereal diseases department he noticed that more than 50% of the patients *showed physical signs of lung disease.*

The German mutual benefit and insurance societies find it pays to establish open-air sanatoria for their phthisical members. I think they would do well to do the same for their early syphilitic cases.

But the trouble is that the man who finds he has contracted syphilis is only too anxious to conceal the fact that there is anything the matter with him. He is depressed, he loses his spirits and mopes indoors, loses his appetite, pins his faith on the mercury, takes much of it, and then when the ill feeling of the secondaries comes he goes from bad to worse, and is for months in the worst possible condition for resisting the invading poison at the most critical time. He is sent, it may be, to Aix-la-Chapelle or Wiesbaden, where he leads an unhealthy hotel life. Far better if he were sent at once to an open-air sanatorium, to lead the same life as is laid down for a patient with slight tuberculosis. Or better still, if he were sent to a high, dry, bracing climate, such as the African veldt or the high Alpine plains of Central Europe, where he can amuse himself gently out of doors for six months or a year, under supervision, and then take to sport to keep him happy and healthy, amongst numbers of other people all busy in the pursuit of health or pleasure. For I notice that early syphilitics do extraordinarily well in these Alpine heights. Blood changes here are rapid; metabolism throughout is heightened, and the patients rapidly regain health, their throat symptoms and rash disappear very quickly, and their pains and fever rapidly go, when they have acquired the appetite which the dry, cold air seems to force on them. And I find that very little mercury goes a long way.

He should devote certainly one year to an open-air life, and, if he can afford it, two years. I believe that then we should not have the 30% of men syphilitic-phthisical patients, and the million of lives per annum which tuberculosis at present costs Europe would also be very much reduced.

Of course, with the laboring classes, it is probably useless to dream of their getting a year or two. But they might get, as they do for tuberculosis, three or four months, though very few of them would take it if they could get it, I feel sure. But how about compulsion? We use compulsion in case of smallpox, — why not for great pox?

This leads me to the question whether our national and international associations and leagues against tuberculosis should not, in considering the prevention of tuberculosis, attack this great source of it, namely, syphilis. And should they not advocate the open-air treatment of syphilis? And should they not agitate ceaselessly for rational legislation on the point? I see great authorities speaking sanguinely of "stamping out this scourge (tuberculosis) of the human race." I believe there is no hope of stamping out "this scourge" without also taking means to stamp out the other even greater scourge, — syphilis. We should consider the soil, not the seed. The tubercle bacillus will always be amongst the flora of damp, dark countries, and while syphilis is plentiful, ever providing a suitable soil, tuberculosis also will flourish.

I do not believe that our National Association

against Tuberculosis will ever start a crusade against syphilis, unless the king, or some other strong, sensible man, or some independent members of a committee, were to take a strong line on the subject.

Many, I know, will say that my estimate of syphilis among phthisical men is too high. I feel confident that when they have made as full inquiries and observations as I have made, they will not be of that opinion. I refrain from offering the usual meretricious attempt at proof by plastic statistics. The last five years have sickened me with their rich supply of lying half-truths.

I only hope that the open-air treatment for early syphilis may become more usual, and I only hope that the National Association against Tuberculosis may advocate it. It need not be known whether the patient has tuberculosis or early syphilis, let the treatment be the same. By helping him to live down his syphilitic poison, we can prevent the chronic inflammatory processes which undoubtedly afterwards provide the soil for the tubercle bacillus. Surely this is not only a wise, but a very necessary policy. I firmly believe that half a million deaths a year in Europe would be prevented by this policy.

But I fear that by taking a strong line and striking at the root of much of the evil, the National Association would run the risk of alienating much valuable sympathy, for there are many worthy people whose firm convictions lead them to entertain the "*pox populi, pox Dei*" theory.

I do not remember having seen the open-air treatment of syphilis advocated in our journals. And yet it has long been clear to me that it is absolutely as loudly called for as the open-air treatment of tuberculosis. When a patient who comes to us is proved to have early tuberculosis we say to him: "This is serious. If you can afford it, you must give up your work, and go away for six months and be over-fed and live in the open air in the best possible climate. After that, if you can afford it, you had better live for another year or two in the open air." I contend that we should do well if we did *exactly* the same with an early case of syphilis.

Clinical Department.

A REPORT OF ELEVEN CASES OF MORBUS COXÆ SENILIS.

BY W. E. BLODGETT, M.D., BOSTON.

From the Orthopedic Department of the Carney Hospital.

ELEVEN cases of morbus coxæ senilis have been studied for this report. Of these eleven cases, six are men. Family history of two cases points to osteo-arthritis of the spine in parents; family history of a third case points to a general deforming joint disease (rheumatoid arthritis?); family history of a fourth case, to chronic knee trouble in a sister; of a fifth, to hip disease (?) in a brother; in all, there is family history of joint disease in five of the eleven cases. Age at onset of disease varies from twenty-six up; two under thirty; two, thirty to forty; three, forty to fifty; three, fifty to sixty; one, unknown. In six of the cases there is history of trauma, which was apparently a factor in deter-

mining the onset of the disease, as follows: Working treadle in making shoestrings, excessive walking, fall (two cases), laborious life of digging, and a period of being rattled about on a dump cart. In each of these cases, the relation of the trauma and the onset of the process at the hip is so intimate as to suggest its being causal. In five cases no etiology was discovered. History of trauma is not more common in the younger than in the older of the eleven cases. Pain is referred, in order of frequency, to the thigh (back or front), knee, hip, groin and lower leg; pain worse usually during use of hip; in two cases, worse at night; frequently affected by changes in the weather.

In four cases, both hips are more or less involved. Joints involved other than the hip are as follows: Knee (two cases), shoulder (one case), other joints normal (six cases), no record (one case).

There is permanent flexion of from 10° to 45° in all but one of the cases examined; the one case without permanent flexion was flexed at the beginning of treatment. In all the cases, motion in all directions was more or less limited, especially in rotation, abduction and adduction. Flexion, the motion most commonly used, is most frequently spared. In two cases the hips are practically ankylosed. Atrophy of the thigh is proportionately much greater than of calf in all the cases recorded, except one in which there is one-half inch atrophy of calf and none of thigh. There is shortening in all the unilateral cases but one; maximum, one inch; average, five-eighths inch. In several cases mild muscular spasm is present, probably due to recent strain; in one case spasm and sensitiveness were very marked, and there were all signs of acute coxitis. Five of the eleven cases have been studied by skiagraphs; these all show bony thickening about head and neck of femur; in one case the bony deposit is as large as an orange.

Treatment of these cases has been general and local.

The general treatment has been, forced feeding, mild catharsis and the copious ingestion of water; elixir of the triple phosphates has been the medication commonly used, if any. This has been prescribed because of its value as a tonic.

Local treatment has been protection, immobilization, and, in picked cases of ankylosis or very deficient mobility, excision. One case has not come under treatment. A second case, in which ankylosis greatly disabled the patient whose means and youth — thirty years — made it imperative for him to get about, was excised several months ago; the symptoms, which had been extraordinarily acute, were immediately relieved, and the patient is now freely walking with crutches and convalescent hip splint. A third case has been excised recently. It is too soon to judge the value of this operative treatment.

Of the eight remaining cases, one case, treated one month by flannel spica and cane, is much relieved. Three cases have been treated two to three months each by plaster spica and cane or crutches. Of these, one is considerably better, one is slightly better, and one, a large woman difficult to immobilize, is practically no better as yet. The fifth case, treated three months by plaster, followed by leather, spica and cane, is unques-

tionably improved, even when spica is removed temporarily. The sixth patient lives too far away to be under supervision and has followed treatment imperfectly, — she used flannel spica and crutches one month, and the last four months has, without advice, used crutches only. This patient gets relief only when using crutches or not bearing the weight on limb. The seventh patient has been two years under leather spica and crutch treatment, and has had almost unbroken relief from pain, night as well as day, and free mobility of the hip, although without the support the limb feels weak and she fears the pain will return. The last case of the series has faithfully followed leather spica and crutch treatment one year; crutches only six months; and inside convalescent hip splint without crutches, the last six months. Pain has been entirely relieved, although hard work may still give a sense of fatigue in hip; mobility has conspicuously increased; limb is losing former atrophy. Improvement has not been steady, as the patient has had two temporary relapses due to slight traumatism, but she is now beginning to omit all apparatus without pain or discomfort.

Of the eight cases treated by partial immobilization and protection during the day, six have already improved, and one has nearly recovered, thus emphasizing the benefit of immobilization and protection in this troublesome and sometimes neglected class of cases.

Medical Progress.

REPORT OF PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M. D., BOSTON.

THE USE OF POTASSIUM CHLORATE IN THE TREATMENT OF CASES OF HABITUAL DEATH OF THE FETUS IN THE LATER MONTHS OF PREGNANCY.

ROBERT JARDINE¹ reports five successful cases of labor after the use of chlorate of potassium in patients who were previously subjected to repeated abortions, and says that upwards of half a century ago Sir James Y. Simpson introduced the use of potassium chlorate in the treatment of cases of habitual death of the fetus in the later months of pregnancy in non-syphilitic cases. In these cases the placenta is markedly degenerated and the purification of the fetal blood is interfered with. Simpson's idea was that the chlorate would give up its oxygen to the maternal blood, and oxygenation of the fetal blood, even with a badly degenerated placenta, would thus be possible. As a matter of fact, the chlorate does not give up its oxygen, but it certainly has a beneficial action on the endometrium.

At the present day there is a tendency to discard the use of what may be termed old-fashioned drugs in favor of newer, untried ones with long chemical formulæ. As he has had considerable experience with potassium chlorate, he gives short notes of a few cases treated in this way. In a clinical lecture on abortion published some years ago he incidentally referred to the use of potassium chlorate in the treatment of cases of habitual death of the fetus in

the later months of pregnancy. In reviewing his paper a writer in a journal of therapeutics took him severely to task, and warned his readers that this method of treatment was a most dangerous one, as the continued use of potassium chlorate for several months would most assuredly have a bad effect upon the patient's blood.

He was quite aware of that theory, but practical experience had shown him that, in regard to these cases, it was entirely fallacious.

His five cases are sufficiently illustrative. The drug was given, in all, continuously from the time the patients came under treatment until delivery was effected. Ten grains were given three times daily after food. The treatment should begin about the end of the third month.

The induction of labor before the usual time of the death of the fetus he has had experience with in one case of his own, and has also seen a case in consultation. In both of these cases the children were born alive but died within a few days. He therefore does not think that induction of labor is nearly so useful a method of treatment as the administration of potassium chlorate.

THE BLOOD OF PREGNANCY AND THE PUERPERIUM.

Pray² says that in the study of the literature one is impressed by the lack of uniformity concerning the condition of the blood during pregnancy. Prior to the perfection of instruments of precision for estimating blood states it was the prevalent opinion that the blood was changed during pregnancy. The pregnant woman was thought to have a much increased blood production, giving rise to a plethoric condition. More recently it has been believed that during pregnancy the salts and the specific gravity were diminished while the water and fibrin were increased. Investigations showed the condition of the blood to be one more of anemia than of plethora. The increase of fibrin in the blood is greatest near labor, and clinically is shown by the increased coagulability at that time. It has been shown that the source of the fibrin is a nucleoproteid due to the disintegration of white blood cells and blood plates.

Pray's observations were made on twelve patients and include 104 examinations and counts, 55 before and 49 after labor. From a detailed study of the individual cases, Pray is led to believe that the blood is only slightly altered as regards the value of red blood cells and hemoglobin in the average pregnancy. In the woman of low vitality, unable to supply the demand for increased nourishment and keep up with the increased metabolism, the generation of these two blood constituents is not rapid enough to keep pace with the increase of the vascular area, and a subsequent decrease in these blood constituents takes place. In a woman of good vitality, free from constipation (a potent cause of anemia in pregnancy), taking sufficient nourishment and assimilating the same, the stimulus caused by the constantly increased metabolism may result in a relatively high value of these blood constituents.

There would appear to be some variation in women* of different nationalities, as he says that

¹ Brit. Med. Journ., vol. II, 1902, p. 1127.

² Am. Gyn., Oct., 1902, p. 227.

German women in general are "fuller blooded" than American is a matter of common observation. This might account for different results, to a certain extent, by different observers. There appears to be a certain amount of leucocytosis in pregnancy but there is no particular difference, in his cases, between the number of leucocytes in primiparous and multiparous cases; and he has not been able to confirm the statement that leucocytosis is absent in a large proportion of multiparous patients.

The conclusions reached by Pray are:

(1) Where blood generation fails to keep pace with the increased vascular area, a serous dilution of the blood takes place.

(2) In the majority of cases this is not serious and can be overcome by simple hygienic measures,—fresh air, good food and the overcoming of constipation. Cases in which the vitality is overtaxed by the increased demand for nutrition may call for iron or other hematonic treatment.

(3) The regeneration of the blood is partly effected by the lessening of the vascular area after labor and subsequent transudation of fluids of the blood into the tissues.

(4) The leucocytosis is due to increased action of enlarged lymph glands of the pelvis, and in part to increased metabolism, which causes a somewhat toxic condition. Its decrease is caused by the lochial discharge. Its persistence is accounted for by the fact that the involution of the hypertrophied pelvic organs and breasts is accomplished in a great measure by the leucocytes.

(5) A study of the blood of a woman delivered by the Cæsarean operation shows the same general behavior of the blood constituents as that of women after normal labors.

QUININE IN PREGNANCY.

Many of the popular beliefs which amount in many cases almost to superstition in regard to what it is possible for a pregnant woman to do or not to do are fast being cleared up. It was formerly believed that it was unsafe to give a pregnant woman ether even for so small a trouble as the extraction of a tooth, but it has been proven possible to perform all sorts of operations during pregnancy even upon the uterus itself.

Maggi, in *La Clinica Ostetrica* for April, 1902, publishes twenty cases in which quinine was administered freely to pregnant women without in any instance producing abortion. He dwells on the danger of not giving quinine in such cases as it is necessary, and cites one instance in which fetal death and abortion occurred presumably from malaria, the medical attendant being afraid to use quinine. In the cases where quinine was given, the infants were healthy and robust.

Betti, in the same journal for June, 1902, gives further clinical evidence where quinine can be safely given to pregnant women, and says that the risk of prematurely ending the pregnancy is less than that produced by the malarial cachexia. He records six cases in all of which quinine was given with the best results. Moreover, in an extensive epidemic of influenza he gave quinine freely to pregnant women. All of these women went safely to full term. Different preparations were given,

valerianate of quinine, salicylate of quinine, bichloride subcutaneously, and in a case of typhoid fever, sulphate of quinine was administered freely for three weeks. The writer³ concludes, therefore, that when pregnant women are affected by maladies that are usually treated with quinine, the drug may be used without the fear of its injuring the pregnancy.

RAPID DILATATION OF THE CERVIX BY BOSSI'S DILATOR IN "ACCOUCHEMENT FORCÉ."

Bossi of Genoa has recently devised the most efficient instrument yet invented for rapid dilatation of the cervix uteri, in eclampsia and other conditions demanding rapid delivery, or in cases where the cervix is rigid and the first stage very slow. The instrument is of metal, with four arms made to expand by means of a series of levers controlled by a single screw.

Several men have reported a considerable number of cases in which they have used Bossi's dilator, all with uniform success. From ten to thirty minutes are required for complete dilatation without laceration in a primipara, depending upon the rigidity of the cervix. Leopold of Dresden has become greatly impressed with the value of the dilator and has recently published twelve cases in which he used it, seven of eclampsia, one of advanced phthisis, one of pregnancy with uterine cramps, one of labor with high fever, and two of contracted pelvis. In eclampsia its use was especially successful, the convulsions ceased in two cases after dilatation, while all the cases recovered.

Leopold⁴ states regarding this instrument: (1) that in all cases the cervix can be fully dilated within half an hour, allowing of turning or application of forceps; (2) there is no danger of tearing the cervix; (3) uterine contractions come on very soon after the introduction of the instrument. For cases of eclampsia it is specially of value, and will probably exclude Cæsarean section in the treatment of this condition when associated with closed and rigid cervix.

Other cases have been reported by Macnaughton-Jones, Simpson and Frost of England, by Lirola and Paoli of Genoa, by Kaiser and Knapp of Germany, all with apparently uniform success.

The reporter has recently used Bossi's dilator in a uterus where only partial dilatation was required. The instrument is undoubtedly a powerful one and able to accomplish the object for which it was designed. The chief criticism which he would offer, but this unquestionably is a potent one, is that the mechanism of the dilator is very complicated, and the instrument is so constructed, with its numerous parts (many levers and screws), that it is practically impossible to take it apart for cleaning. This feature renders strict asepsis impossible, and is of course a *sine qua non* in any surgical instrument at the present time. The instrument is of metal and may be boiled, but its many slots and crevices will harbor surgical dirt, so that in a short time mere boiling would be inefficient. It is surprising that this very objectionable feature of the instrument has not elicited criticism before this.

³ Journ. of Obstet. and Gyn. of the Brit. Emp., p. 291.

⁴ Leopold: Arch., f. Gyn., vol. lxxvi, p. 188.

GANGRENE OF THE NIPPLES IN THE PUERPERIUM AFTER THE USE OF ORTHOFORM.

Four years ago in this department there were reported some instances in which orthoform was used for fissures and cracks of the nipples in nursing women. At that time orthoform was recommended as an antiseptic powder and also as a local anesthetic. Orthoform was declared to be perfectly harmless for external use and absolutely non-toxic for the baby.

A case has been recently reported by Vincent⁵ in which orthoform was used for excoriated nipples, being powdered for several days freely upon the excoriated nipples, and the nipples also protected by rubber shields. Some days after its use the whole front of the breast became covered by a dark red rash, the skin infiltrated, edematous and very tender, and the question of erysipelas was raised as there was a slight resemblance to this disease. The patient's general condition, however, there being no constitutional symptoms except local pain and slight headache, quite excluded erysipelas. The nipples became grayish black in color with absence of sensation, and soon became definitely gangrenous. The rash extended to the chest, the back and also to the buttocks. Both nipples sloughed, and healing occurred slowly by granulation. The author says it is impossible to prove the cause of the gangrene, but he believes it to have been due to the orthoform, as such a rash is well known to those who use orthoform in general surgery. In a letter to the *Lancet* of April 12, 1902, the writer, George Pernet, in referring to Vincent's case, believes there is no doubt that orthoform was the cause of both the rash and the gangrene, as several instances of the latter complication have been recorded.

The reporter has used orthoform a considerable number of times for fissures of the nipples since its introduction, and has known of its use in many other cases and without any harmful effect. He has usually used it in alcoholic solution however. It would seem, therefore, that its use in powder form at least is not without danger.

RESUSCITATION BY INFUSION THROUGH THE UMBILICAL VEIN.

Shücking⁶ has been induced by studying the emptying of the placenta and its blood into the umbilical vein by intra-uterine pressure to attempt the infusion of saline solution into the umbilical vein as a means of resuscitation when the more common means fail. He reports one case where the infant was born in an exhausted condition after a prolonged labor. After failure of other means of resuscitation, and the heart sounds were scarcely distinguishable, he immediately cut the cord and injected about 50 grms. saline solution into the umbilical vein. This reinforced by Sylvester's artificial respiration revived the child successfully.

NEW METHOD OF RESUSCITATION IN ASPHYXIA NEONATORUM.

Mankovitch⁷ says the most energetic method of resuscitating asphyxiated newly born infants is that

of Schultze, which is described in all the textbooks. At the same time, his method, though very popular, is one which in inexperienced hands may become quite dangerous, and in any case it is a rough, brutal procedure. In the beginning, when the author employed it, he was often afraid that the slimy, slipping body of the infant would slip through his fingers, and that he would injure some of the child's internal organs by the manipulation of throwing it up feet foremost. Cases are on record in which this method was followed by hemorrhage into the cavity of the stomach and into other organs, and even by rupture of the pleura. For the past two years, therefore, the author has used another method which avoids the dangers of Schultze. The principle of greatest possible compression followed by dilatation of the child's thorax is the same in this method as in that of Schultze, with the exception that the body of the infant is given a firm point of support. In asphyxia neonatorum the author first cleanses the child's mouth, holding it with the head downward, suspended by the feet. The cord is then tied and cut, and the infant immediately seated upon its buttocks on a table or bed, with its legs spread and extended, the back being towards the operator. The body is grasped from behind with both hands in the axillæ, the fingers on the thorax, the thumbs on the scapulæ, and then the whole body is bent forward, with the head foremost and downward toward the feet, the hands at the same time compressing the body. The body is then raised from its bent position and brought into the horizontal plane, the chest thus being expanded by the fingers in front letting their grip relax and the thumbs pressing from behind slightly raising the trunk. A small roll of blanket may be placed under the child's back for convenience. The method thus outlined has many advantages. It is easy of execution, enables one to watch the child's condition, and does not involve any injury. There is no need of special speed in performing the motions of this method. Respirations begin to show themselves even after a few movements such as have been described. The method is simple enough to be taught to nurses and to be applied by them in case of emergency.

(To be continued.)

Reports of Societies.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE TWELFTH ANNUAL MEETING, HELD AT ST. JOSEPH, MO., DEC. 29 AND 30, 1902.

[Continued from No. 4, p. 102.]

GUNSHOT WOUNDS OF THE STOMACH.

In commenting on this and other cases of gunshot wounds of the stomach, the essayist stated that since surgeons of international reputation do not agree as to an immediate operation, he prefers to accept that which may seem less conservative, namely, an immediate operation in all cases where it is reasonably certain that the stomach has been perforated.

⁵ *Lancet*, April 5, 1902, p. 862.

⁶ *Med. News*, Aug. 23, 1902, p. 358.

⁷ *N. Y. Med. Journ.*, Nov. 15, 1902, p. 870; *Vratch*, Oct. 15, 1902.

DR. VAN BUREN KNOTT of Sioux City, Iowa, contributed a paper on

FOWLER'S POSITION IN ABDOMINAL SURGERY.

Since it was brought to his notice, he has employed this position in the treatment of cases of septic peritonitis, and he reported five recoveries from diffuse septic peritonitis. These successes were not consecutive, however, no two of them having occurred without an intervening failure. Brief histories of the five successful cases were given, as they are the only cases of diffuse septic peritonitis that have been operated upon by the author successfully. The Fowler position was maintained for twenty-four hours, unless some special reason for continuing it was present. He says that the head of the bed should be raised from eighteen to twenty inches from the floor. He hoped that those present who had neglected to employ the Fowler position would be induced to do so, for he believes that it can do no harm, and in many cases will prove of much value.

DR. A. F. JONAS of Omaha, Neb., read a paper entitled

OLD IRREDUCIBLE DISLOCATIONS OF THE SHOULDER JOINT.

The author referred at length to the literature of such cases, and reported seven in his own practice. His method of dealing with these cases consisted chiefly of (1) manipulation, using the forearm as a lever, rotating outward and inward; abduction and adduction, never forgetting for a moment a possible accident to the axillary vessels and nerves, and the possibility of fracturing the humerus. (2) If this plan fails, the capsule is incised, and all cicatricial tissue is extirpated. All muscular attachments that offer restraint are severed, the axillary vessels are protected with a broad, flat retractor, and the head of the bone is brought into place by means of an elevator, assisted by manipulation and traction. To avoid infecting the wound in this last maneuver, it is advisable to wrap firmly the entire arm and hand with wet sublimate towels. Dry towels are liable to slip and become displaced, making it possible for the operator's hand to become infected. If the head cannot be replaced, then (3) the head of the humerus should be resected, an operation to be avoided when possible, on account of the resultant flail-like condition of the arm, and yet must be done (a) when the humeral head and neck become too extensively stripped of their attachments, experience having shown that necrosis may occur in 16% of the cases; (b) when osseous union has occurred between the head and the ribs; (c) when, after a division of all restraining soft parts, the head rests against the point of the acromion process.

DR. ALEXANDER HUGH FERGUSON of Chicago reported a

CASE OF END-TO-END ANASTOMOSIS OF THE POPLITEAL ARTERY FOR GUNSHOT INJURY.

He gave a history of the injury, described the physical findings, and the operation which he did.

DR. WILLIAM E. GROUND of West Superior, Wis., contributed a paper on

NATURAL AND LOGICAL TREATMENT OF INJURIES OF THE PELVIC FLOOR OCCURRING DURING PARTURITION.

His conclusions were that almost every woman during her confinement suffers injuries from which she does not recover unless she is subjected to a secondary operation for repair of lacerations of the pelvic floor; that immediate suture of apparent lacerations does not restore pelvic support in the vast majority of instances; that from one to two months after labor the woman should be subjected to a thorough examination, and any relaxation corrected before it has had time to impair her health.

DR. B. MERRILL RICKETTS of Cincinnati, Ohio, presented a paper on

LUNG SURGERY; HISTORICAL AND EXPERIMENTAL, which was illustrated by lantern slides. The author's conclusions were:

(1) Severing one or more of the larger pulmonary blood vessels results in instant death.

(2) If death does not result within a few minutes, bleeding will be slow and gradual.

(3) If bleeding is slow and gradual, it may require hours or days to cause fatal exhaustion.

(4) If death does not occur until after the end of the second day following severe bleeding, infection is its cause.

(5) All or a part of the escaped blood may pass through the opening in the chest into the bronchus or alimentary tract.

(6) The blood may escape into the pleural cavity or cavities, pericardial or peritoneal cavity, or all, and thereby become concealed.

(7) Pneumonotomy. More definite knowledge of conditions and symptomatology is necessary that surgery of the lung may be perfected and made more aggressive in general.

(8) Abnormalities, congenital or acquired, must always be considered in dealing surgically with the lungs.

(9) Atelectasis and apneumotosis should be cared for by relieving the compression by removing the cause.

(10) The same surgical principles can be applied to the lung as other organs of the living body.

(11) The bony chest may be opened for exploration of the lung with as little danger as opening the abdomen, cranium, articulating capsule, kidney, liver, pancreas, spleen, stomach, gut, or hepatic duct.

(12) Hermetically closing the chest is irrational, unscientific and dangerous.

(13) Closing the chest wound by any means does not prevent the escape of blood from injured pulmonary vessels into the pleural cavity.

(14) All wounds of the chest wall, whether penetrating or non-penetrating, should be treated aseptically, and with reference to drainage.

(15) No instrument or needle should be made to enter the lung tissue for exploration, or the removal of fluid, unless the bony chest has previously been opened.

(16) Foreign bodies in the bronchi or parenchyma of the lung may be detected with a fine exploratory needle through an open chest, with the lung contracted.

(17) Foreign bodies in the lung and bronchi, when causing serious symptoms, should be removed.

(18) Some small, foreign bodies become encysted and remain harmless.

(19) The position of a foreign body in the lung changes with expansion and contraction of the lung.

(20) Hemorrhage, when due to pulmonary tuberculosis, should not be allowed to become fatal without opening the bony chest, and the application of pressure by forceps, gauze or otherwise.

(21) Bleeding of the lung from any cause will, in many cases, cease when the lung is allowed to contract upon itself, with an open chest.

(22) Blood clots within the pleural cavity should be removed at the time they are discovered, whether infected or not.

(23) Blood clots in the pleural cavity may become organized with or without adhesions of the parietal and visceral pleura, or they may become infected and cause more serious consequences.

(To be continued.)

SUFFOLK DISTRICT MEDICAL SOCIETY.

F. J. COTTON, M. D., SECRETARY.

STATED meeting, Oct. 25, 1902, DR. T. M. ROTCH presiding.

DR. ROBERT B. OSGOOD read a paper on

LESIONS OF THE TIBIAL TUBERCLE OCCURRING IN ADOLESCENCE.

DISCUSSION.

DR. E. G. BRACKETT: The subject presented by Dr. Osgood is one of very marked importance as well as one of interest. Since it is one of those in which the x-ray is beginning to show new light, both on the local condition and on the diagnosis, and we need to have all the information possible while we are learning about the true position to be given to this kind of evidence, I think that Dr. Osgood has presented this subject, which is new, in a particularly wise manner. We should be critical in the interpretation of the conditions shown by the x-ray, which are as yet not thoroughly understood. He has, in addition, given us control observations, and has used the conditions found by his x-ray to substantiate only the clinical features. The value of this kind of work lies largely in its application to allied conditions, particularly such as have been in the past considered as sprains, which have shown an unusual amount of clinical persistency. These are undoubtedly more than the usual rupture of ligaments, and it explains why many of these have shown such definite local symptoms from the number of injuries following sprains of unusual force, in which the prominence of the clinical symptoms are out of proportion to the physical signs. These symptoms are confined to a closely defined area and to disability in the impairment of the special function presided over by the part. Many of these conditions are shown now to be injuries of the bone from complete fractures or a tearing off of a prominent part of the bone, and due to the severe muscle actions. These cases are beginning to be reported, a large variety of them are seen, and a

careful work on cases like those of which we have just heard has a wide general importance.

DR. GOLDTHWAIT: It seems to me Dr. Osgood has made a distinct contribution to our surgical knowledge, and all the observations which he has made, and the details and the care with which they have been worked out, is entirely due to his own effort. He has personally been a great help to me. We had worked for some time, recognizing these cases and devising methods of treatment, but the exact nature was not revealed until Dr. Osgood made these studies. It seems to me a particularly opportune time to have this brought before this society, just at the football season.

DR. CODMAN: I think that most of us have seen these injuries before, but have not known what was the cause of them. I know of two doctors in Boston who still have evidences of such lesions from playing football, and I have no doubt that the injury occurred in the way Dr. Osgood tells us. The importance of the communication he has made lies in his explanation of the injury. Many of us have recognized the injury, but supposed that it came from direct violence, perhaps a bruise starting periostitis, which caused new bone formation, and formed a little addition to the bone, a small osteophyte. The fact that in youth the insertion of the patella tendon is more apt to yield to strain than other portions of the quadriceps is suggestive.

We all know that in some people muscular contraction of the quadriceps will rupture the patella. In my own experience the only cases of ruptured patella I have seen have been in people past the age in which the epiphyses have united. They may sometimes occur in boys of the age at which lesion of the tibial tubercle occurs, but I have not seen them. Occasionally sudden contraction of the quadriceps causes tearing of the capsule above the patella. I have personally seen only three cases of this, and these cases have been in men past sixty. Perhaps it may be, then, that the point most likely to yield to excessive strain of the quadriceps varies with the age of the patient.

Another point that strikes me is the fact that little bodies of bone similar to these fragments torn from the patellar tubercle are often seen in x-rays of the tendons in other places, for example, in the insertion of the triceps in the point of the olecranon, or in the insertion of the tendo Achillis in the upper part of the os calcis. I have several times taken x-rays of people with such conditions. I have brought down three plates which I can only mention because it would be impossible to show them to so large an audience. One is of a man who plays golf a great deal, and who one day in driving had a sudden sharp pain at the point of the elbow. The x-ray shows at that point a little hook of bone apparently growing up into the tendon of the triceps. It was my supposition at that time that the effort of making the drive had caused a fracture of an osteophyte. The more he used it the more it became inflamed. Another x-ray is exactly similar in a laboring man, which occurred from lifting or hammering. I had supposed before Dr. Osgood's paper that these injuries were more a periostitis or a new bone formation than direct tearing away by violence of the insertion of the tendon. I think he is to be congratulated for having pointed this out so clearly in the tibia.

Recent Literature.

A Compend of Human Physiology. By A. P. BRUBAKER. Eleventh edition, pp. 270. P. Blakiston's Son & Co. 1902.

In the eleventh edition of a textbook intended for medical students, one would expect to find the work done systematically and with few or no errors.

When noticing the tenth edition, the reviewer called attention to the indiscriminate use of the metric and the English systems of weights and measures. This vicious practice has not been improved upon in the present edition, and it is apt to confuse rather than help the average student.

The reader is told that *cupric hydroxide* is reduced to a condition of a cuprous oxide by dextrose, but that levulose "has a reducing action on *cupric oxide*," (p. 19). Also, "stimulation of a sensory nerve, if sufficiently strong, results in the sensation of pain; of the optic nerve in the sensation of light," etc. Here, as in most other portions of the book, the term *sensory* is used as an equivalent of *pain* and *tactile*, but the student may be confused when he reads (p. 217) that under "sensory" may be included sight, auditory, gustatory and olfactory impression effects.

The following extracts will illustrate the opinion of the author upon some interesting topics: "Experimentally, it has been determined that the anterior or ventral roots contain all the efferent fibers, the posterior or dorsal roots all the afferent fibers" (p. 77).

"Irritation of the cerebellum is not followed by any evidence either of pain or convulsive movements; it is, therefore, *insensible and inexcitable*" (p. 206).

"In congenital idiocy not only is the brain of small size, but it is wanting in proper chemic composition *phosphorus*, a characteristic ingredient of nervous tissue, being largely diminished in amount" (p. 213).

"As to the manner in which the objective stimuli — light and color, so called — are transformed into nerve impulses, but little is known. It is probable that the ethereal vibrations are transformed into heat which excites the rods and cones" (p. 236).

"Division of the *depressor nerve* and galvanization of the central end retard and even arrest the pulsation of the heart, and, by depressing the vasomotor center, diminish the pressure of blood in the large vessels by causing dilatation of the intestinal vessels through the splanchnic nerves" (p. 194).

Oxygen "in all probability unites with the sulphur hydrogen of the food to form water" (p. 141).

"Fibrinogen can be obtained by *strongly diluting* serum and passing carbonic acid through it for a long time, when it is precipitated as a viscous deposit" (p. 120).

"Peptones . . . pass through the wall of the capillary blood vessel" (p. 116).

"When subjected to the action of super-heated steam, a neutral fat is saponified, that is, decomposed into glycerine and the particular acid indicated by the name of the fat used" (p. 22).

To the reviewers the work seems rather badly done, aside from the difficulty of writing such a compend. It is doubtful whether or not the insertion of so much histological material is advisable. It makes

the book too large to be called a "compend" — there are 270 pages of rather small type as compared with 640 pages of rather large type in a standard work on physiology — and these facts of histology should have a place outside a physiological compend.

Binding, paper and letter press are the same as in former editions.

Therapeutics of Dry Hot Air. By CLARENCE EDWARD SKINNER, M.D., LL.D. New York: A. L. Chatterton & Co.

A discussion of the therapeutic uses to which hot air may be applied and of its value in different affections is not undeserving of a monograph, but the extent and importance of the subject hardly warrant its being carried over 200 good-sized pages, as is the case in the volume before us. The enthusiasm of the author seems to have carried him beyond a judicial consideration of the subject, and he has failed to resist the temptation of vaunting, in a manner hardly warranted by the facts adduced, the curative value of hot air in many conditions in which the judgment of the profession at large places it in a position of secondary or doubtful importance.

The chief value of Dr. Skinner's book lies in some good suggestions about the technique of applying hot air, and in the precautions necessary in giving a "body treatment," arising from its physiological results. He calls attention to the profound stimulation of the deep nervous centers, evidenced by the rise of pulse and temperature, which is caused by the application to the entire body of heat of 300° to 350° for half an hour, and he likens it to the results produced by hydrotherapy. This deep reflex response is the aim of his "body treatments."

He claims that hot air alone will cure many cases of arthritis deformans, but does not recommend reliance upon it to the exclusion of other measures. In connection with this disease he states that in a patient whom he treated for three months with hot-air baths, he observed at the end of this time a complete disappearance of the atheroma which had previously existed, as shown by thickening of the radial arteries. He believes that absorption of the lime salts, deposited in the vessel walls, takes place under the influence of hot-air baths, but advises "less than 350° of heat until the arteries have softened some." He finds no contraindication to these treatments in atheroma or valvular heart disease.

He discusses at considerable length the use of hot air in pneumonia, and believes that, "thoroughly and judiciously applied, it is one of the most efficient means now known for combating the disease."

We should hesitate to recommend widely the use of hot air in even "ordinarily severe blood-poisoning," and we agree that "hot air must not be expected to remove pus." Nor can we agree that hot air "would seem to be an ideal measure for the removal of nerve debility of any degree."

Dr. Skinner apparently does not consider that ether can be used to advantage in an attack of hepatic colic, and the case cited of a woman who passed gall-stones in the feces after a severe seizure of this sort does not convince us that the occurrence might not have taken place if she had never received hot-air therapeutics. The author has applied

hot air with varying degrees of benefit in a large number of conditions. In one case in particular, he states that he saved the life of a patient in *extremis* with typhoid fever, by the timely use of five hot-air treatments.

The book impresses the reader as being full of the suggestions of an enthusiastic "hot-air expert" for the employment of dry heat in conditions where it is often impractical or runs the chance of doing considerable harm for the sake of very problematical good. It cannot be called a judicial statement of the uses and limitations of this mode of treatment.

Diseases of the Pancreas and Their Surgical Treatment. By A. W. MAYO ROBSON, F.R.C.S., Senior Surgeon, Leeds General Infirmary; Emeritus Professor of Surgery, Yorkshire College, Victoria University, England; and B. G. A. MOYNIHAN, M.S. (Lond.), F.R.C.S., Assistant Surgeon, Leeds General Infirmary; Consulting Surgeon to the Skipton and to the Mirfield Memorial Hospitals, England. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

The attention which has been directed to the pancreas within the past few years has made it apparent that hopeful treatment for remediable diseases of this organ must be offered by the surgeon, not by the physician. It must be the function of the latter, however, to facilitate the diagnosis of these affections, although unfortunately at present most of the diagnoses are made by the surgeon after an exploratory operation or by the pathologist at an autopsy.

Mayo Robson has made one of the most important practical contributions to the diagnosis and treatment of diseases of the pancreas by having demonstrated that in a considerable number of cases of chronic jaundice the condition present was chronic pancreatitis, not cancer, the cause was an incarcerated gall-stone in the ampulla of Vater, and the removal of the cause accomplished a cure.

In the volume now under consideration the authors have informed the reader how this result was brought about. They have produced also an interesting and concise work on the various diseases of the pancreas.

Hope is expressed that chemical examinations of the urine, or urine, blood and feces, may aid in the diagnosis of deficient pancreatic secretion in the bowels. This hope, it appears, is based upon the observations of Mr. Cammidge, who boiled urine for a short time with an oxidizing agent and then applied the phenyl-hydrazin test. Abundant crystals were found in a case of chronic pancreatitis, while the results were negative when there was no pancreatitis.

The writers dedicate the volume "to the surgeons of America," and also show appreciation of the work of the latter by numerous references to and quotations from their publications. Both physicians and surgeons will acknowledge their indebtedness to the authors for an admirable essay upon the subjects concerned.

A word of commendation may be added for the publishers, who have issued a volume of handy size and weight, agreeably illustrated and clearly printed.

Studies in Neurological Diagnosis. By JAMES J. PUTNAM, M.D., and GEORGE A. WATERMAN, M.D. 12mo. pp. x 214, with 33 plates and eight illustrations. Boston: Geo. H. Ellis Co., Printers. 1902.

The present volume is a direct outgrowth of the "case system" method of instruction, which has been in vogue for the last two or three years. It is a record of 170 cases of nervous disease, taken largely from the neurological clinic of the Massachusetts General Hospital. The cases have been selected not as illustrative of the commoner types of disease, but as affording problems for study. Often, too, the cases are given in incomplete form. Nevertheless, the series of cases as given includes nearly all the familiar types of nervous disease, and affords a tolerably complete picture of clinical neurology. So far as we know, it is the first attempt to present a series of cases suitable for instruction by means of the "case" method, and it attains the object admirably in the clearness of its clinical descriptions and the abundance of its clinical material. In a few instances, however, it is stated that certain points of much importance in the given case will be brought out later in the discussion, which is a disadvantage to others who may wish to use the work in their own teaching. The book is interleaved for convenience in note taking.

The Treatment of Tabetic Ataxia by Means of Systematic Exercise. By Dr. H. S. FRENKEL. Translated and edited by L. FREYBERGER, M.D. 8vo. pp. xiv, 185, with 132 illustrations. Philadelphia: P. Blakiston's Son & Co. 1902.

It is about thirteen years since Frenkel first began to teach that re-education of the muscles, especially by the aid of the sight, might be of substantial benefit by aiding the ataxic patient to re-acquire the power of co-ordinated movements. Since that time the methods taught by him have won such general acceptance by all who have been called upon to treat tabid patients for ataxia that it is safe to say that to Frenkel we owe the one definite advance in the treatment of tabes that has been made during the last fifteen years. Two years ago Frenkel published a volume incorporating the latest details in his method of treatment. The first part of it is devoted to a study of the true nature of tabetic ataxia, which he believes is due primarily to the diminution of sensibility, especially of the muscles and joints, but which may be exaggerated by the great muscular hypotonicity so often met with. This portion of the book is especially to be commended to all students of neurology, for the question of muscular tonicity and the tests for some of the forms of sensibility are described much more fully than in the ordinary textbooks. The latter half of the book is devoted to the description of the various forms of exercise adapted for the re-education of the muscles in cases of ataxia. This section is so profusely illustrated that the whole process is made perfectly intelligible to every one, and is indispensable to all who would undertake to treat a patient with ataxia. The volume before us condenses the original somewhat, omitting some of the more theoretical portion, but it reproduces all the illustrations. The translation is intelligible but by no means elegant.

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THE EXPANSION OF SURGERY.

THE tendency toward specialism which has characterized the recent development of medicine has unquestionably brought with it many advantages, not the least of which is the growing recognition of the close inter-relationships of the fundamental branches of medical science with medical practice. The student of a special subject must now look far beyond the immediate range of its practical application to the principles upon which all thorough special study must rest. The disadvantages of specialism are to some minds manifold and threatening, but it must at least be given the credit of making us better anatomists and pathologists and physiologists. It requires no very keen insight to appreciate the fact that these fundamental branches are being studied and applied in the practical work of the physician as never before.

A most striking example of this tendency may be seen in that most practical of all the departments of medicine, — surgery. At a recent largely attended medical meeting in Boston, on the general subject, "Consideration of Blood Pressure," the chairman, Dr. W. T. Councilman, in introducing the readers of the evening, who were both surgeons, remarked on the fact that in its early differentiation from general medicine, surgery had quickly adopted and made use of the teachings of pathological anatomy as an aid and incentive to its best work. He spoke further of a new tendency which was becoming evident among progressive students of surgery, namely, a closer application of physiology and the methods of the physiological laboratory to the problems of surgery. The papers which followed were certainly a striking exemplification of this point of view. Dr. George W. Crile of Cleveland, a surgeon widely trained in physiological methods, read a highly original paper on "Some Observations on the

Methods of Control in the Blood Pressure," on the basis of a large series of experiments with the end in view of determining the nature of collapse and shock, and methods for their rational treatment. The detailed and somewhat radical conclusions reached by this investigation of an eminently practical sort derive their interest and importance from the fact that they were reached wholly by physiological experimentation.

Dr. Harvey Cushing of Baltimore read at the same meeting a suggestive paper on the "Clinical Value of Blood Pressure Observations," with particular reference to various instruments and the clinical value of such observations. In the discussion of these papers Dr. W. T. Porter spoke on the importance of introducing accurate methods of physiological experimentation into clinical work, and the necessity on the part of clinicians of recognizing the value of such methods of investigation.

The point upon which we wish to lay stress is that a meeting of this sort, in which the communications were from surgeons on physiological topics, is worthy of more than passing mention as an indication of an evident and valuable tendency. It must be apparent to all who have gone below the surface in any line of clinical work that questions of practical import are continually presenting themselves, which can only be answered by an appeal to an entirely different department of medical research. The student of disorders of gastric or renal function must continually appeal to underlying principles which chemistry, apparently, can alone answer; the neurologist requires a continually increasing store of anatomical and pathological knowledge if he is to make the diagnoses required of him; the surgeon sees in his practical work, for example, the phenomena of shock and its consequences, and seeks for its cause and its remedy through the medium of physiological, not of surgical, investigation. Men of surgical training are undoubtedly coming more and more to a realization of this principle of the complicated interrelations of their work, regarded from the broad point of view. The overcrowding of the operative field adds a certain stimulus to this collateral investigation, and we are finding surgeons more and more departing from the narrow range of their original work into alien but related fields, to the definite advantage of general medicine.

In spite of the fact of the manifest tendency to exclude men working in clinical fields from positions of responsibility in the so-called theoretical and fundamental departments of medicine, anatomy, chemistry, pathology and physiology, it is evident that clinicians are coming more and more to feel their

dependence upon these fundamental branches, and are attempting with success to work out many of their problems by recourse to laboratory methods. Anything which will tend to make closer the bond between conditions of disease as clinically observed and the laboratory branches of medicine should be encouraged to the last degree. The work of surgeons in pathological and physiological lines is doing a large share toward this consummation.

INTRAVASCULAR ANTISEPSIS.

RENEWED interest has lately been drawn to the subject of intravascular antiseptics by the reported successful treatment in New York of a case of puerperal septicemia by injections of a formalin solution. If the report, which at first reached us largely from newspaper sources and has apparently since been confirmed, be true, there can be no question that at least in this case a cure of an otherwise fatal condition was effected by this somewhat radical form of treatment. General discussion of the matter which followed the report of this case has brought out a renewed enthusiasm for this method of combating septic conditions, and has also revived a healthy skepticism as to the extent to which it may be safely and successfully employed.

The principle of intravascular injections of various antiseptic solutions for the relief of septic conditions is not new, although it appears that comparatively few attempts have been made to test its efficiency on man. In the edition of the *Lancet* for Jan. 10, an interesting and timely review of the general subject is given by J. M. Fortesque-Brickdale from the Bacteriological Department of the Jenner Institute of Preventive Medicine. From the historical retrospect given in this paper it seems that as long ago as 1656 Sir Christopher Wren suggested the idea that drugs might advantageously be introduced into the circulation by direct injection. Many observers since that time have attempted this method of treating conditions of disease, among whom Baccelli may be mentioned, particularly in relation to the treatment of disease caused by bacteria. Baccelli introduced the intravenous injection of a salt of mercury in the treatment of syphilis, a procedure which after considerable trial has been abandoned as offering no special advantages over other methods. He was more successful in his treatment of aphtha epizootica in cattle, a success which was not, however, attained by other experimenters.

Experiments have been made by Maguire and Ewart to render the lungs aseptic by injecting solutions of formalin and protargol into the circula-

tion. A large number of tuberculous patients have been treated by this method with, on the whole, encouraging results. A very large number of experiments of a varied character, with the same general end in view, have been done by Continental and English observers but with somewhat unsatisfactory results. Among the latest of these experiments are those which form the basis of the paper to which we have alluded. Rabbits were used as the experimental animals, and the attempt was more to determine how far injection of various substances into the circulation was capable of counteracting the effects of bacteria or bacterial poisons previously introduced. From these experiments the following conclusions are drawn:

"That rabbits injected daily with non-toxic doses of oxycyanide of mercury, formic aldehyde, chinolol, protargol or taurocholate of sodium are not thereby protected from the usual effects of a previous inoculation of virulent anthrax; and that chinolol and formic aldehyde in large doses (toxic) so depress rabbits infected with the pneumococcus that they die sooner than an untreated animal."

From this work it is claimed that the experimental evidence is not sufficient to warrant the assumption that septicemia in animals can be favorably influenced by intravenous antiseptic injections. It is maintained, therefore, that the method probably has no future as a therapeutic measure.

It need hardly be said that the whole subject, so far as the treatment of human beings is concerned, is in a far too uncertain state to permit of any dogmatic assertion. The experience in New York would, however, seem to show that the danger of intravenous injections sufficiently large to produce a decided amelioration of symptoms is not in itself necessarily prohibitive. We have already heard of several other cases in which this treatment has since been tried. In at least one of these there was at first a decidedly encouraging improvement, but death subsequently supervened. This was a streptococcus septicemia. We shall look forward with much interest to further experience on the subject, which no doubt will be forthcoming now that one case at least seems to have been saved by this radical method of treatment.

MEDICAL LIBRARY AND HISTORICAL JOURNAL.

THE first number of this journal, the publication of which has already been announced in these columns, has appeared. It will be issued quarterly under the editorship of Albert T. Huntington and John S. Brownne. The object of this new journal, as stated in an editorial comment, is to supply medical historians, medical librarians and medical

bibliophiles with an exclusive medium of intercommunication. The fact is pointed out that there is an awakening interest in medical history, that medical bibliography is a subject of great importance, and that the recent development of medical libraries should all have recognition in a journal devoted to this end.

It is designed to publish original articles on subjects coming within the scope of the journal, to discuss practical methods of library administration, care of books, the construction and use of medical libraries, etc. In addition to this an index of every current medical book will be published. The Association of Medical Librarians, which was founded in 1898, has adopted the journal as the official organ for the publication of its transactions. Under these auspices and supported by the medical profession in general, we have no doubt the periodical will fill a place of permanent usefulness. This first number contains a variety of articles, largely of an historical sort, in addition to many facts and suggestions which should be of use in the encouragement and development of the literary side of the profession. The journal certainly infringes on no one's territory, and should receive a general and cordial support.

MEDICAL NOTES.

GIFT TO THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—Through the instrumentality of Dr. S. Weir Mitchell, Mr. Andrew Carnegie has been led to offer to the College of Physicians in Philadelphia \$50,000, on the condition that the college raises \$50,000 more. Of this sum, \$10,000 is said to have already been subscribed by Mr. F. W. Vanderbilt, and \$5,000 by Mr. Clement A. Griscom. It is intended to expend this \$100,000, which it is hoped will be raised, on improvements in the library of the college, which in importance already stands next to that of the Surgeon-General's office in Washington.

HOSPITAL FOR MANILA.—It is reported that Bishop Brent of the Philippines, late of Boston, is at the head of a movement to establish a large non-sectarian general hospital in Manila, which is to be modeled after the Boston City Hospital. The government has been petitioned to aid in this undertaking, which, under present conditions, could not be supported by private effort.

BURNING OF THE COLNEY HATCH ASYLUM.—Occurring almost coincidently with the hospital fires referred to under Boston and New England notes, there was serious loss of life in the burning of a wing of the Colney Hatch Asylum, the county insane hospital, near London. Five wooden buildings were de-

stroyed, and over fifty lunatics, all women, were burned to death, some of them as they lay in their beds. The patients were panic-stricken, but nearly six hundred of them were removed safely, though with the utmost difficulty, to the main building. Some of them escaped from the attendants and remain at large.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Jan. 28, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 57, scarlatina 37, measles 10, typhoid fever 11, smallpox 4.

OFFICERS OF BOSTON LYING-IN HOSPITAL.—At the annual meeting of the Boston Lying-in Hospital the following-named officers were reelected: President, Nathaniel Thayer; vice-president, Henry H. Sprague; treasurer, Charles S. Hamlin; secretary, William D. Sohler; trustees, William H. Baldwin, Thomas F. Edmunds, Oliver Ames, Charles W. Hubbard, Samuel Wells and Wallace L. Pierce. Two trustees, Dr. J. Collins Warren and Dr. George B. Shattuck, are appointed from the Massachusetts Humane Society, and two, George G. Crocker and James G. Freeman, from the Massachusetts Charitable Fire Society.

FUNDS NEEDED TO REBUILD CONVALESCENT HOME.—The Board of Managers of the Convalescent Home of the Children's Hospital has made a strong appeal for money to rebuild the Convalescent Home at Wellesley, recently destroyed by fire. It is pointed out that the home must be immediately rebuilt if the work of the hospital is not to be seriously hampered; hence immediate gifts are desired. The insurance on the former building will by no means cover the expense of a new one.

HOSPITAL FIRES.—A slight fire occurred on the evening of Jan. 23 in one of the out-lying wards of the Boston City Hospital. By the prompt and efficient action of those in charge, all the patients were removed safely, and three days later the ward was again in use. Damage to the extent of about \$1,500 is said to have been done. On Jan. 25 the smallpox hospital at Biddeford, Me., was almost completely destroyed by fire. Thirty-six patients, scantily clad, were turned out into the snow, where they were obliged to remain some minutes before being removed to a place of shelter half a mile away. All suffered severely from the exposure, and it is said that one woman will not live. The alarm is said to have been given at the police station by one of the smallpox patients in person.

BAPTIST HOSPITAL. — At the recent annual meeting of the New England Baptist Hospital Association it was pointed out that the hospital had outgrown its present quarters. The hospital had treated 317 patients during the past year.

NEW YORK.

INTRAVENOUS USE OF FORMALIN. — The intravenous injection of formalin would appear to be best adapted to cases of puerperal sepsis. In a case of septicemia recently treated at St. Vincent's Hospital, which is stated to have resulted from a wound of the scalp, and which was complicated with pneumonia, the remedy was proved ineffectual in saving the patient's life.

HEALTH IN STATE PRISONS. — In the annual report of the superintendent of state prisons for the year ending Sept. 30, 1902, which has just been made public, it is stated that the health of the convicts was excellent and the mortality low, and that in one of the oldest of the prisons the death-rate was the smallest in its history. The death-rate at Sing Sing was .58, at Auburn .85, and at Dannemora (at Clinton), 1.60. The high rate at the latter institution is due to the fact that convicts suffering from tuberculosis are transferred thither from other prisons on account of its Adirondack climate. The improvement in the health conditions and the reduction in mortality effected in the prisons is shown by comparison with the deaths reported in former years. At random, the report of 1888 is taken up, when 59 deaths occurred during the year in a prison population of approximately 3,260; while in 1902 there were only 31 deaths. On the subject of tuberculosis, which is so markedly prevalent in prisons, it is stated that the last five years, as compared with the preceding five, have shown a decrease of 71% in the total number of deaths from this disease in the three prisons named. The report then goes on to say: "This is largely due to the practice of transferring from Auburn and Sing Sing to Clinton Prison prisoners suffering from this disease in its earlier stages. It is the excellent result of practical effort on the part of prison officials, and especially on the part of Dr. Ransom of Clinton Prison, to utilize the limited facilities at their command for the benefit of humanity by the reduction of tubercular disease in the prisons, and thus diminish the danger of contagion from prisoners after their discharge."

DRUG SUBSTITUTION. — At a largely attended meeting of the College of Pharmacy of the city of New York, held Jan. 20, the practice of drug substitution was condemned in a set of resolutions, the pre-

amble of which states that such practice appears to be increasing at a rate which threatens serious professional and commercial difficulties. The condemnation includes substitution in prescription work as well as in ordinary trade, and the members of the college pledge themselves both as individuals and in their corporate capacity to suppress the practice as an act of deception and abuse of confidence of both physician and patient.

HOOK WORM DISEASE. — At the January meeting of the Medical Society of the County of Kings, Brooklyn, Dr. Charles W. Stiles of the U. S. Marine Hospital Service read a paper on "Hook Worm Disease, a Newly Recognized Factor in American Anemia." He said that the disease produced by the "laziness germ" was more common and severe among persons of blonde complexion than among brunettes, and was confined principally to those who in their daily life came in contact with earth, such as miners, farmers, brick-makers and children. The affection is more prevalent in summer than in winter, and is principally met with in the South. In the course of his remarks Dr. Stiles said: "It is our duty to wipe this out of the Southern States. If the people must eat dirt, let us take care that they eat clean dirt. Those suffering from the disease cannot compete with well men. There is not the slightest doubt in my mind that it is the most important factor in the present condition of the poor whites of the South. I do not believe that the disease will ever develop to any extent in the North, but it is a serious question whether the excavations now going on in New York City may not give it an opportunity to become epidemic. I do not believe there is a great danger, but it is a question worth considering."

DEMONSTRATION OF INJURIES BEFORE A JURY. — The Brooklyn Appellate Division of the New York Supreme Court has rendered a decision approving the action of a trial justice of the Supreme Court in allowing the plaintiff in an accident suit against the Brooklyn Heights Railroad Company to attempt to drink a glass of water and also to attempt to write his name, for the purpose of showing the results of his injuries. It was contended that it was an error to permit these physical demonstrations before the jury. "We are referred," said Justice Willard Bartlett, speaking for the court, "to no direct authority on this question in any appellate court of this state, but I am inclined to think that such evidence was admissible within the fair discretion of the trial court. The injured person could certainly be allowed to testify that since the injury

he had not been able to write without experiencing a tremor of the hand, or to drink a glass of water without similar inconvenience. I am unable to perceive any good reason why he may not be allowed to illustrate the extent of this incapacity as well as to state it in words. Deception, of course, is possible in such an illustration, but it is equally possible in the oral statement. In either case the jury is to judge of the credibility of the witness."

THE INSANE OF NEW YORK STATE. — The annual report of the State Commission in Lunacy for the past year states that the number of insane in the State hospitals was 24,061, and in the private asylums in the State, 981. The net increase in all institutions during the year was 678. The new cases committed to the State hospitals numbered 4,566; cases discharged as cured, 1,125; discharged as improved, 1,358; discharged as unimproved, 2,655; deaths, 1,808. Fifty-seven patients were discharged as not insane, these including cases of alcoholism, drug habit, etc. The percentage of recoveries, based on the original commitments in the State hospitals, was 24.6, a proportion somewhat below that of 1901, but higher than that of the three preceding years. The percentage of deaths was 39.6, a marked decrease as compared with the previous year. The commission recommends the establishment of a reception psychopathic hospital in a quiet neighborhood readily accessible from all parts of Manhattan, so as to suit the convenience of patients and consulting physicians, as well as of the students of the various medical schools, who may there have the opportunity for obtaining a practical knowledge of insanity and its treatment. It urges the necessity of the immediate establishment of a new State hospital to which insane patients belonging to Albany, Rensselaer and contiguous counties may be sent. The purchase of one thousand acres of land and the erection of buildings to accommodate from two to three thousand inmates are recommended, and in connection with this hospital the establishment of a pavilion for patients suffering from tuberculosis. It is pointed out that a self-supporting industrial colony might gradually be put in operation here. Among the other recommendations of the commission are five-day commitments of emergency cases to the State hospitals without the formality of legal commitment pending a determination of sanity, and the extension of the system of voluntary patients to the State hospitals. Since 1898 private licensed institutions have been permitted to receive such cases at will, and the number of these on Oct. 1, 1902, was 155. The number of private licensed asylums in the State is now 23.

Epistellamp.

A MEDICAL PRESIDENT.

M. ADOLF DEUCHER, who was recently elected President of the Swiss Republic for the third time, is a member of the medical profession. He was born at Steckborn, in the Thurgovia Canton, in 1831, and early began to take an active part in local politics. It is said by those who have watched his career that the devotion and self-sacrifice with which he practised his profession won for him the hearts of the people, and paved his way to the distinguished position which he now holds. He became a member of the National Council in 1867. In 1883 he became a member of the Federal Council, and almost at once was elected President of the republic. He has also served as head of nearly all the departments of state, but his principal work has been accomplished as chief of the Department of Commerce, Industries and Agriculture. President Deucher has always taken a special interest in labor questions, and by his method of dealing with them he has gained the full confidence of the working classes. It may be added, as showing the true Republican simplicity with which Switzerland manages its affairs, that M. Deucher's official salary as President is £720. Another noteworthy point is that that very comprehensive catalogue of persons of note, *Who's Who?* omits his name altogether. It is doubtless sufficient for Dr. Deucher that he has the rare distinction of being most honored by those who know him best. — *British Medical Journal*.

REPORT OF THE ADVISORY STAFF OF THE SOUTH DEPARTMENT, BOSTON CITY HOSPITAL.

THE following report of the Advisory Staff of the Department for Contagious Diseases of the Boston City Hospital, presented to the senior staff of the hospital at its annual meeting held on Jan. 12, has been sent to the JOURNAL for publication:

There has been a marked diminution, both in mortality and morbidity, from diphtheria in recent years, as shown by the following statistics: In 1894, mortality per 10,000, 18.08%; 1902, mortality, 3.83% per 10,000. In 1902, the morbidity, 34.72% per 10,000; in 1895 (which year is taken because the bacteriological examination first commenced then), the morbidity was 81% per 10,000. In the South Department the general mortality from diphtheria has diminished to 11%, including all cases. It is interesting, also, to find that the various paralyzes and other post-diphtheritic complications have diminished. In 1902 these complications were found to a greater or less extent in 20%. Before the use of antitoxin they were found in 33% of the cases. Ehrlich discovered these complications to be due to the presence of a modified toxin, which he calls toxone, which is much slower in action and has less affinity both to cells and antitoxin than the essential toxin has. This is rather a confirmation of Ehrlich's views, as showing that there has not been

as great relative reduction in this complication of diphtheria as there has been in the results due to the true toxin.

Thirty-eight cases of diphtheria, six of measles and nine of scarlet fever appeared in the Boston City Hospital, and were brought from there to the South Department. These were chiefly single cases. There was no ward epidemic except in Ward O. Eight cases appeared in the ward. Examination of the internes in charge showed three positive cultures in their throats. All cases seemed to have arisen from one interne, who three days before had nasal discharge and slight sore throat. He was an etherizer and dresser, and was brought into intimate contact with patients. There was also a boy in Ward E who was attended by this interne, and he was also infected. Immunization by antitoxin was carried into the entire ward. There was no extension of the disease in the ward after the discovery of these cases. The committee would recommend the immediate bacteriological examination of any house officer or attendant with sore throat or nasal discharge. There have been no cases of diphtheria infection of wounds in the hospital.

Smallpox.—Thirty-five cases of smallpox were sent from the City Hospital to the Smallpox Hospital. Most of these were applications for admission appearing with initial fever or in the eruptive stage. Eleven cases appeared in the wards. All persons who were in contact in any way with the smallpox cases were revaccinated, with 30% of takes. No infection followed. There are now two huts, with one bed in each, where suspected cases can be watched. These are inadequate for the purpose, and there are no means of thorough disinfection. It is not possible to prevent the admission of persons into a general hospital who either have or will develop smallpox in cases of epidemics of the disease.

One case of smallpox appeared in the South Department. During the year there were six applications for scarlet fever admission to the South Department, which turned out on examination to be cases of initial rash of smallpox.

W. T. COUNCILMAN, M.D.
JOHN G. BLAKE, M.D.
GEO. W. GAY, M.D.
A. L. MASON, M.D.

Correspondence.

ADULTERATION, SUBSTITUTION OR CARELESSNESS?

OFFICE OF THE MASSACHUSETTS STATE
BOARD OF HEALTH, STATE HOUSE.

BOSTON, Jan. 27, 1903.

MR. EDITOR: In the course of the usual examination of drugs made by the State Board of Health, analyses were recently made of two packages labeled Potassii Iodidum Gran. which had been purchased for the use of the Boston Dispensary.

These samples were found to contain no iodide of potassium, but consisted of a mixture of potassium bromide and sodium bromide. The unbroken packages bore the name of Lehn & Fink of New York City.

SAMUEL W. ABBOTT,
Secretary of State Board of Health.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, JAN. 17, 1903.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Scarlet fever.
New York . .	3,785,156	1,430	440	21.47	15.59	2.29	.69	1.11
Chicago . . .	1,985,270	696	184	21.92	20.98	1.14	8.52	1.14
Philadelphia .	1,378,627	498	122	16.06	19.47	1.40	3.80	.40
St. Louis . . .	618,481	—	—	—	—	—	—	—
Baltimore . .	632,719	230	73	24.78	18.26	2.60	.97	.48
Cleveland . .	427,731	—	—	—	—	—	—	—
Buffalo . . .	387,964	—	—	—	—	—	—	—
Pittsburg . .	351,745	154	48	29.32	20.13	3.24	7.14	1.95
Cincinnati . .	325,140	—	—	—	—	—	—	—
Milwaukee . .	315,807	—	—	—	—	—	—	—
Washington .	305,108	—	—	—	—	—	—	—
Providence . .	191,220	77	27	19.50	26.00	—	—	—
Boston . . .	603,163	202	80	20.29	18.81	1.98	1.48	.50
Worcester . .	132,044	45	14	19.50	10.41	—	—	2.08
Fall River . .	115,549	52	23	13.46	21.15	1.92	1.92	1.92
Lowell . . .	101,959	49	14	8.16	32.64	4.08	—	—
Cambridge . .	96,639	25	8	23.00	32.00	—	4.00	4.00
Lynn	72,487	33	8	18.18	—	—	9.37	—
Lawrence . .	63,765	32	19	40.62	25.00	—	—	—
Springfield .	63,339	11	3	9.09	27.27	—	—	—
Somerville . .	63,110	1	1	37.50	—	6.25	—	12.50
New Bedford .	67,186	20	8	10.00	25.00	5.00	—	—
Holyoke . . .	49,236	16	7	25.00	—	—	—	—
Brocton . . .	44,873	12	1	16.87	—	—	8.33	—
Haverhill . .	42,104	14	4	14.29	31.43	—	—	—
Newton . . .	37,794	9	2	—	11.11	—	—	—
Salem	36,876	18	6	7.70	7.70	—	—	—
Malden . . .	36,236	9	1	22.22	—	—	—	—
Chelsea . . .	35,876	13	4	—	23.10	—	—	—
Fitchburg . .	35,069	9	3	22.22	22.22	—	—	—
Taunton . . .	33,636	—	—	—	—	—	—	—
Everett . . .	28,620	4	—	25.00	—	—	—	—
North Adams .	27,862	6	1	—	16.67	—	—	—
Gloucester . .	26,121	10	4	10.00	—	—	—	—
Quincy . . .	26,043	6	1	16.67	—	—	—	—
Waltham . . .	25,198	11	—	—	—	—	—	—
Brookline . .	22,908	2	0	—	—	—	—	—
Pittsfield . .	22,539	6	2	—	—	—	—	—
Chicopee . . .	21,031	7	4	—	28.60	—	—	—
Medford . . .	20,862	5	—	20.00	40.00	—	20.00	—
Northampton .	19,883	2	0	—	—	—	—	—
Beverly . . .	15,802	6	1	—	16.67	—	—	—
Clinton . . .	15,161	2	1	—	—	—	—	—
Leominster . .	14,806	—	—	—	—	—	—	—
Newburyport .	14,478	8	0	13.50	13.50	—	—	—
Woburn . . .	14,300	4	0	—	—	—	—	—
Hyde Park . .	14,175	—	—	—	—	—	—	—
Adams	13,745	—	—	—	—	—	—	—
Attleboro . .	13,677	—	—	—	—	—	—	—
Marlboro . .	13,609	2	0	50.00	—	—	—	—
Melrose . . .	13,600	7	3	14.30	—	—	—	—
Westfield . .	13,418	3	—	—	—	—	—	—
Milford . . .	13,199	—	—	—	—	—	—	—
Revere	12,722	4	1	—	25.00	—	—	—
Framingham .	12,534	—	—	—	—	—	—	—
Peabody . . .	12,179	—	—	—	—	—	—	—
Gardner . . .	11,928	—	3	—	—	—	—	—
Weymouth . .	11,844	3	—	33.33	33.33	—	—	—
Southbridge .	11,268	4	—	—	50.00	—	—	—
Watertown . .	11,077	4	1	—	50.00	—	—	—
Plymouth . .	10,730	—	—	—	—	—	—	—

Deaths reported, 3,711; under five years of age, 1,120; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 756, acute lung diseases 661, consumption 386, scarlet fever 87, whooping cough 45, cerebrospinal meningitis 9, smallpox 9, erysipelas 4, measles 30, typhoid fever 75, diarrheal diseases 60, diphtheria and croup 88.

From whooping cough, New York 14, Chicago 9, Philadelphia 2, Baltimore 2, Pittsburg 5, Providence 2, Boston 5, Cambridge 2, Worcester, Lynn, Lawrence and Haverhill 1 each. From erysipelas, Chicago, Baltimore, Pittsburg and Providence 1 each. From smallpox, New York 1, Philadelphia 2, Pittsburg 3, Boston 3.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,380, for the week ending Jan. 3, the death-rate was 20.0. Deaths reported, 5,705; acute diseases of the respiratory organs (London) 415, whooping cough 123, diphtheria 98, measles 174, smallpox 12, scarlet fever 67.

The death-rate ranged from 8.3 in Hornsey to 39.4 in Newport (Mon.); London 20.9, West Ham 18.9, Brighton 17.6, Portsmouth 17.9, Southampton 16.5, Plymouth 16.6, Bristol 22.0, Birmingham 21.2, Leicester 15.2, Nottingham 17.2, Bolton 17.1, Manchester 21.4, Salford 24.4, Bradford 17.4, Leeds 18.6, Hull 25.5, New Castle-on-Tyne 21.7, Cardiff 19.4, Rhondda 14.3, Liverpool 22.8, Wallasey 15.8.

METEOROLOGICAL RECORD

For the week ending Jan. 17, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S. 11	29.78	26	38	15	66	100	88	SW	SE	5	5	C.	R.	.24
M. 12	29.64	32	40	15	54	55	54	W	W	30	31	C.	C.	.22
T. 13	29.07	19	28	13	61	55	58	W	W	17	18	C.	C.	0
W. 14	30.19	20	26	15	71	59	65	W	SW	14	12	C.	O.	0
T. 15	29.79	29	35	23	82	58	70	SW	W	16	21	C.	O.	0
F. 16	29.90	36	39	34	71	58	64	SW	SW	16	10	C.	F.	0
S. 17	29.56	41	47	35	69	65	67	SW	W	16	12	O.	C.	0
Mean	29.85		36	21			66							.56

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
 Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED JAN. 22, 1903.

BAILHACHE, PRESTON H., surgeon. Leave of absence for thirty days from Jan. 6, 1903, amended so that it shall be for twelve days. Jan. 22, 1903.

AUSTIN, H. W., surgeon. Leave of absence for three days under paragraph 179 of the regulations.

GUIERAS, G. M., passed assistant surgeon. Granted leave of absence for seven days, under paragraph 181 of the regulations, from Jan. 19, 1903.

OAKLEY, J. H., passed assistant surgeon. Leave of absence for two days granted by bureau letter of Jan. 13, 1903, revoked. Jan. 20, 1903.

KORN, W. A., assistant surgeon. To proceed to Delaware Breakwater Quarantine, and assume temporary charge of the station during the absence, on leave, of Passed Assistant Surgeon C. H. Lavinder. Jan. 17, 1903.

BOGGESE, J. S., assistant surgeon. Granted leave of absence for four days from Jan. 21. Jan. 18, 1903.

SAMS, F. F., acting assistant surgeon. Leave of absence for thirty days from Jan. 1, 1903, granted by department letter of Jan. 5, amended to read thirty days from Jan. 5. Jan. 14, 1903.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR WEEK OF JAN. 24.

G. H. HART, A. W. KAINES, T. C. FOSTER, W. H. BLOCK and J. R. DYKES, doctors. Appointed acting assistant surgeons.

W. F. ARNOLD, surgeon. Detached from Cavite Naval Station and ordered to Port Isabela, P. I.

C. M. OMAN, assistant surgeon. Detached from Port Isabela, and ordered to the "Frolie."

A. G. GRUNWELL, passed assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Hospital, Washington, D. C.

E. O. HUNTINGTON, passed assistant surgeon. Detached from the Navy Yard, New York, and ordered to the "Maine."

D. B. KERR, passed assistant surgeon. Detached from recruiting duty, and ordered to the "Wabash."

E. G. HOLCOMB, passed assistant surgeon. Commissioned passed assistant surgeon.

C. H. DELANCY, assistant surgeon. Detached from recruiting duty, and ordered to Naval Hospital, Norfolk, Va.

F. M. BOGAN, assistant surgeon. Detached from Naval Hospital, Washington, D. C., and ordered to the Navy Yard, Washington.

J. P. DEBRULER, doctor. Appointed assistant surgeon. Jan. 3, 1903.

R. A. CAMPBELL, acting assistant surgeon. Ordered to duty with recruiting party.

W. F. KEENE, acting assistant surgeon. Ordered to duty with recruiting party.

R. B. CHAPMAN, acting assistant surgeon. Ordered to duty with recruiting party.

R. W. PLUMMER, passed assistant surgeon. Detached from recruiting duty and ordered to the "Prairie."

F. M. FURLONG, passed assistant surgeon. Detached from recruiting duty and ordered to the Navy Yard, New York.

J. T. MILLER, acting assistant surgeon. Ordered to recruiting duty.

W. H. JANNEY, acting assistant surgeon. Ordered to the Naval Hospital, Port Royal, S. C.

A. M. MOORE, surgeon, retired. Appointed member of Board of Examiners for Civil Engineers, Chicago, Ill.

J. C. BYRNES, surgeon. Additional duty as member of Board of Examiners for Civil Engineers, New York.

E. H. BLACKWELL, assistant surgeon. Additional duty as a member of Board of Examiners for Civil Engineers, New York.

EXAMINATIONS FOR MEDICAL CORPS OF THE ARMY.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE, WASHINGTON, Jan. 22, 1903.

Examinations of candidates for appointment in the medical corps of the army will be resumed by the Army Medical Board in this city on April 20 next. Classes will be invited to appear on April 20 and each Monday thereafter so long as is necessary. Full information as to method of application, nature and scope of examination, etc., will be furnished by this office upon request of those interested. Applicants from civil life are restricted in age to twenty-nine years, and hospital training or professional experience in private practice is expected of all candidates. There are at present thirty-five vacancies to be filled.

R. M. O'REILLY,
 Surgeon-General U. S. Army.

SOCIETY NOTICES.

WESTERN OPHTHALMOLOGIC AND OTO-LARYNGOLOGIC ASSOCIATION.—The eighth annual meeting of the Western Ophthalmologic and Oto-Laryngologic Association will be held in Indianapolis, Ind., April 9, 10, 11, 1903.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The American Medico-Psychological Association having become affiliated with the Congress of American Physicians and Surgeons it is obligatory under the constitution and by-laws of the congress that the association hold its meeting in 1903 and every third year in Washington. The council has therefore changed the place of meeting from Providence to Washington, and fixed the dates, May 12, 13, 14 and 15, 1903.

C. B. BURR, M.D., Secretary.
 FLINT, MICH., Jan. 22, 1903.

BOOKS AND PAMPHLETS RECEIVED.

The Mental Status of Czolgosz, the Assassin of President McKinley. By Walter Channing. M.D., of Brookline, Mass. Seven plates. Reprint. 1902.

Transactions of the Chicago Pathological Society, containing an article by Dr. Edwin O. Jordan, On the Nature of Pyocyanin, and an article by Dr. Howard T. Bicketts on Lymphatotoxic Serum. Chicago. 1902.

Transactions of the American Gynecological Society. Vol. xxvii. For the year 1902. Illustrated. Philadelphia: William J. Dornan.

A Textbook of Pharmacology and Therapeutics or the Action of Drugs in Health and Disease. By Arthur R. Cushny, M.A., M.D. (Aberd.). Third edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

Biographic Clinics. The Origin of the Ill-Health of DeQuincey, Carlyle, Darwin, Huxley and Browning. By George M. Gould, M.D. Philadelphia: P. Blakiston's Son & Co. 1903.

A New Sign of Pleuritic Effusion in Children. By Samuel W. Kelley, M.D., of Cleveland, Ohio. Reprint. 1902.

A Specimen of Diphtheritic Membrane. By Samuel W. Kelley, M.D., of Cleveland, Ohio. Reprint. 1902.

Lea's Series of Pocket Textbooks. Anatomy, a Manual for Students and Practitioners. By William H. Rockwell, Jr., M.D. Series, edited by Bern B. Gallanudet, M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

A Manual of Materia Medica and Pharmacology. Comprising all Organic and Inorganic Drugs which are or have been Official in the United States Pharmacopoeia, together with Important Allied Species and Useful Synthetics. Especially designed for Students of Pharmacy and Medicine as well as for Druggists, Pharmacists and Physicians. By David M. E. Culbreth, Ph.G., M.D. Third edition, enlarged and thoroughly revised. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

MUNICIPAL CIVIL SERVICE COMMISSION.

61 ELM STREET,

NEW YORK, Jan. 20, 1903.

PUBLIC NOTICE IS HEREBY GIVEN THAT OPEN COMPETITIVE EXAMINATIONS will be held for the following positions:—

Bacteriologist (Fourth Grade).

(Annual compensation \$1,200.)

THURSDAY, FEB. 5, 1903, at 10 A.M.

The receipt of applications for this examination will close on Monday, Feb. 2, 1903, at 4 P.M.

The scope of the examination will be as follows:

Subjects.	Weights.
Technical knowledge	50
Experience	15
Mathematics	20
Reports	15

There are at present vacancies in the Department

of Water Supply, Gas and Electricity and in the Department of Health.

Laboratory Assistant (First Grade).

(Offices or positions having an annual compensation of \$750 or less.)

FRIDAY, FEB. 6, 1903, at 10 A.M.

The receipt of applications for this examination will close on Monday, Feb. 2, 1903, at 4 P.M.

The scope of the examination will be as follows:

Subjects.	Weights.
Duties	6
Arithmetic	3
Experience	1

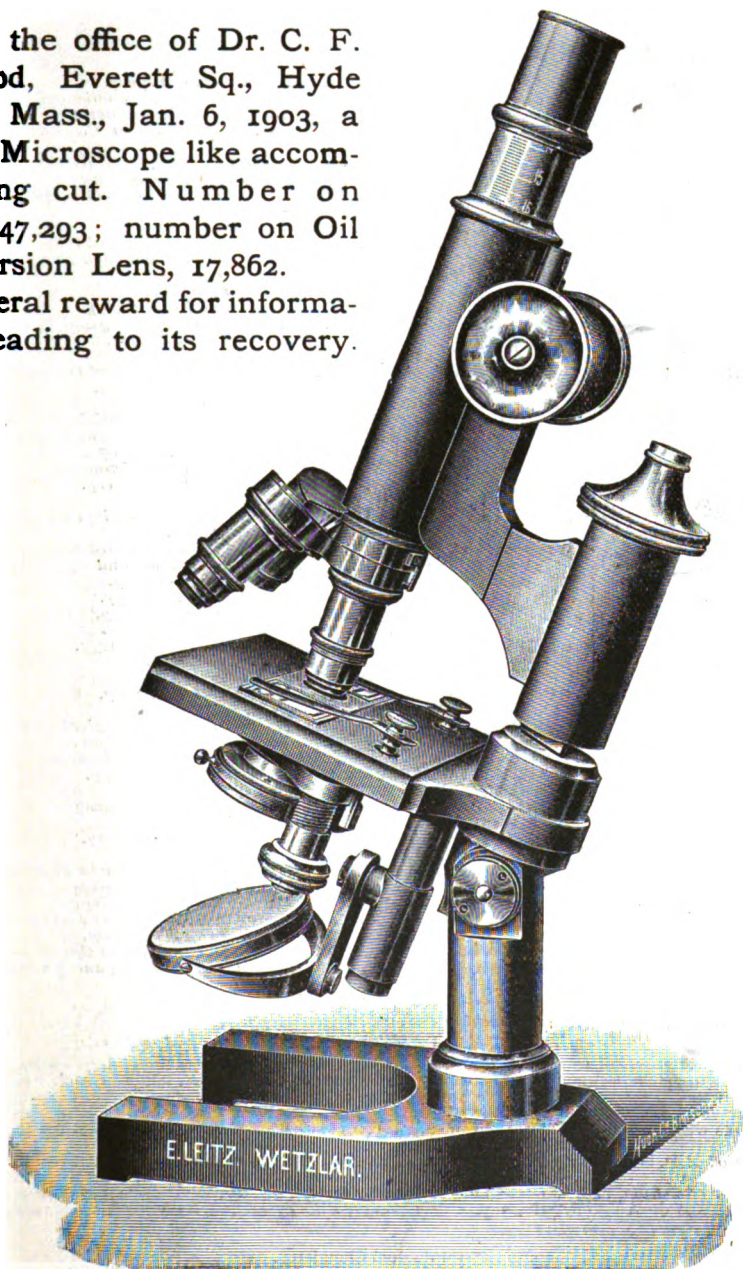
Candidates should have had experience in the work connected with the bacteriological laboratory. There are at present vacancies in the Department of Water Supply, Gas and Electricity and in the Department of Health.

S. WILLIAM BRISCOE,
Secretary.

STOLEN

From the office of Dr. C. F. Atwood, Everett Sq., Hyde Park, Mass., Jan. 6, 1903, a Leitz Microscope like accompanying cut. Number on base, 47,293; number on Oil Immersion Lens, 17,862.

Liberal reward for information leading to its recovery.



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HARVARD UNIVERSITY

MEDICAL DEPARTMENT, BOSTON, MASS.

ONE HUNDRED AND TWENTY-FIRST ANNUAL ANNOUNCEMENT (1903-1904)

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Original Articles.

ON PARATYPHOID FEVER AND ITS COMPLICATIONS.¹

BY JOSEPH H. PRATT, M.D., BOSTON,

Assistant in the Theory and Practice of Physic, Harvard Medical School.

As is well known, certain typical cases of typhoid fever have occurred in which the Grünbaum-Widal reaction has been persistently absent. In 1897 Gwyn¹ studied such a case in Osler's clinic. The classical features of typhoid fever were present. There was continued pyrexia, enlarged spleen, rose-spots, delirium, diazo reaction and intestinal hemorrhage, but the serum test was persistently negative. From the blood, however, a bacillus was obtained intermediate in type between the typhoid and colon bacilli. It was agglutinated by the blood of the patient in as high a dilution as 1:200.

BACTERIOLOGY.

The paratyphoid bacilli, of which Gwyn's microorganism is a type, are members of a much larger group which includes the meat-poisoning bacilli, *Bacillus psittacosis* and the hog cholera bacillus. This intermediate group has been the subject of elaborate comparative studies by Harvey Cushing,² Durham³ and Buxton.⁴ Members of this group ferment glucose with the formation of gas and thereby resemble *Bacillus coli*, but like the typhoid they do not form indol nor do they produce gas in lactose media.

The paratyphoid bacilli may be defined as those members of the intermediate group which produce typhoidal symptoms in man.

The name paracolon was given by Gilbert⁵ in 1895 to bacteria intermediate in type between the typhoid and colon bacilli. Gwyn, following Widal,⁶ called his microorganism a paracolon bacillus and some bacteriologists today prefer this name. But the term paratyphoid used first by Archard and Bensaude⁷ in 1896 and reintroduced by Schottmüller⁸ in 1901 seems the preferable designation, as these microorganisms produce typhoidal symptoms and are more closely related to *Bacillus typhosus* than to *Bacillus coli*.

There are two species of paratyphoid bacilli. Buxton⁴ calls them the α and β paratyphoids, which correspond to groups A and B of Schottmüller's⁸ classification. The former species or group produces less gas in glucose media and resembles the typhoid bacillus in its action on milk. Both paratyphoids produce an initial acidity in milk and in Petruschky's litmus whey. With the α paratyphoid the acidity persists and in litmus whey becomes quite marked; with the β paratyphoid the acidity changes to a terminal alkalinity.

Both species reduce neutral red to yellow, therein resembling *Bacillus coli*. Buxton has shown that with *Bacillus paratyphosus* β the yellow color is permanent, while with *Bacillus paratyphosus* α the red color slowly returns, until within three weeks or less the yellow is entirely replaced by red.

NOTES ON THREE UNRECORDED CASES.

Archard and Bensaude⁷ reported the first two cases of paratyphoid infection in 1896. A year

later Widal⁶ isolated a paratyphoid bacillus from an abscess in the neighborhood of the thyroid gland and esophagus. In 1898 Gwyn¹ reported his case. No others had been recorded when our first case came under observation.

CASE I. *Suppurative orchitis following a supposed attack of typhoid fever; Bacillus paratyphosus* β isolated from pus. C. B., aged twenty-three, a soldier invalided home from Cuba, was admitted to Dr. R. W. Lovett's service at the Boston City Hospital complaining of swelling of the testicle. Two weeks previously, while convalescing from typhoid fever, the right testicle began to swell. It became red and tender, and was incised four days before admission by Dr. Nicholas Senn of Chicago, at Montauk Point. On examination the right half of the scrotum is found red and swollen and the testicle is enlarged. Epididymis not clearly defined on account of extreme tenderness. There are two incisions discharging pus. Temperature, 99.2°. On Sept. 21 there was a sudden rise of temperature to 104°. Examination of the blood for malarial parasites negative. On the following day an abscess, which had formed between the two incisions, broke externally and pus escaped through three openings. Two days later the temperature reached normal. Convalescence was uneventful and the patient was discharged Sept. 30.

Bacteriological examination.—Sept. 21. From the pus and broken-down tissue expressed through the incisions an abundant growth was obtained on blood serum of a bacillus identical morphologically with the typhoid bacillus and decolorizing by Gram's method.

Sept. 22: Agar plates made from the serum culture. After twenty-four hours' growth circular colonies have formed. They are about 1 mm. in diameter, semi-transparent and of bluish white color. The centers are denser and more opaque. The margin under low power is seen to be slightly wavy.

Sept. 24: The microorganism is actively motile in a twenty-four-hour bouillon culture, and is not agglutinated by the serum of a typhoid patient, which clumps the typhoid bacillus in high dilutions. This microorganism was called *Bacillus* 48. Its biochemical properties were as follows:

In 1% glucose bouillon in a Smith fermentation tube 4.9 cm. of gas were produced in forty-eight hours. At the end of ten days the column of gas was 4.4 cm. high. A white flocculent sediment had formed in the connecting arm. The reaction of the fluid in the open bulb was 2.7% acid. In 1% saccharose bouillon no gas formation. In ten days an abundant sediment had collected in the connecting arm. In 1% lactose no gas formation; some sediment; reaction 0.35% alkaline. Initial acidity of all media 1.5% acid to phenolphthalein.

Litmus milk faintly acid on third day. On eleventh day alkaline. No coagulation even on boiling.

No indol produced in glucose-free bouillon prepared by Theobald Smith's method.

Animal experiments.—On Oct. 5, 1898, a rabbit was inoculated subcutaneously with 1 cc. of a twenty-four-hour bouillon culture of *Bacillus* 48.

Oct. 27: Serum from rabbit in dilution 1:400 agglutinates *Bacillus* 48. It does not agglutinate the typhoid bacillus in dilution 1:10. Time limit one hour.

Oct. 28: Large subcutaneous abscess about 4 cm. in diameter which has formed at point of inoculation was opened today. No organisms in cover-slip preparations. *Bacillus* 48 recovered in pure culture.

Nov. 5: *Rabbit No. 2* inoculated with 1 cc. of a twenty-four-hour bouillon culture of *Bacillus* 48.

Nov. 16: Deep abscess 3 cm. in diameter opened. *Bacillus* recovered in pure culture.

June 13, 1899: *Guinea pig* inoculated subcutaneously with 1 cc. of a twenty-four-hour bouillon culture.

June 15: Swelling 2 cm. in size at point of injection. Weight 455 grams.

June 18: Pig appears sick; apathetic; remains quietly in one spot. Swelling has increased to nearly the size of a hen's egg. It is indurated; central portion red. Weight 405 grams.

June 24: Found dead. Rigor mortis present. Large abscess in subcutaneous tissue of abdomen with pockets

¹ Read in part at the Boston Medical Library, Dec. 15, 1902.

extending in all directions. It has ruptured externally, but does not communicate with the peritoneal cavity. Spleen greatly swollen. Axillary and inguinal lymph nodes swollen and hyperemic and thickly beset with opaque white areas ranging from a minute point to 2 and 3 mm. in size. Similar nodules disseminated throughout the abdominal muscles. Gall-bladder contracted into a cord. On a serum tube inoculated with a drop of the heart's blood 78 colonies appeared. Examination showed *Bacillus* 48 in pure culture. It was also recovered from the axillary glands, peritoneum and spleen.

Orchitis is a rare but well-recognized complication of typhoid fever. Kinnicutt⁹ in 1901 collected 53 cases in the literature. One fourth of the cases terminated in suppuration. No other case of orchitis due to the paratyphoid bacillus has been recorded.

The animal experiments show the marked pyogenic properties possessed by this strain of the β paratyphoid. After cultivation for eight months on artificial media it produced a large abscess in a guinea pig. Libman's monograph contains the protocol of a similar experiment with the same amount of bouillon culture. His strain of β paratyphoid bacillus produced at the site of inoculation nothing more than an indurated area not extending to the muscles.

Through the kindness of Dr. Mark Richardson I am permitted to report the following case:

CASE II. *Cholelithiasis due to Bacillus paratyphosus β ; typhoid fever four years previously; recovery.* M. K., female, aged eighteen years. Private patient of Dr. J. W. Elliot. First seen by him in October, 1899. History of severe pain in right hypochondrium for two years. Typhoid fever in 1895.

On Nov. 1, 1899, Dr. Elliot operated. The gall-bladder was thickened and contracted about four white faceted calculi, each the size of a chestnut, apparently consisting of pure cholesterin.

Bacteriological examination by Dr. Mark Richardson.—Cultures were made from the centers of four stones and from the fluid contained in the gall-bladder. Cover-slip preparations from center of gall-stone show forms which look like bacilli but can scarcely be differentiated from surrounding debris.

Nov. 14: Both fluid and stones show pure cultures of a bacillus with rounded ends; very motile, resembling typhoid.

Bouillon.—Abundant growth in twenty-four hours; general cloudiness.

Potato.—Moist, yellowish gray growth.

Glucose agar.—Gas production.

Litmus milk.—No coagulation, but alkaline rather than acid production.

Gelatine.—Abundant, moist, grayish white, glistening, irregular growth. No liquefaction. No reaction, with typhoid serum in dilution 1:10.

Agglutination tests with patient's blood:

Bacillus from gall-stone: dilution 1:40; good reaction in five minutes.

Bacillus from gall-bladder: dilution 1:40; reaction fair.

Bacillus icteroideus: dilution 1:10; reaction, slight clumping and loss of motility.

Bacillus typhosus: dilution 1:10; reaction negative.

Bacillus coli: dilution 1:10; reaction negative.

A further study of this microorganism, called for convenience *Bacillus Kay*, has been made by Professor Theobald Smith, who kindly furnished me with cultures. He found that it did not produce gas in lactose or saccharose media, nor indol in glucose-free bouillon. It formed alkali in milk.

Clinical and experimental evidence seems to show that the typhoid bacillus produces gall-stones, but this case of cholelithiasis due to the paratyphoid bacillus is unique. Gilbert and Fournier,¹⁰ Mark

Richardson¹¹ and Harvey Cushing¹² have produced biliary calculi experimentally by inoculating animals with typhoid bacilli. Many times has the typhoid bacillus been obtained from the nuclei of gall-stones. I reported a case which seems to indicate not only that the typhoid bacillus produces gall-stones, but that it produces them quickly.¹³ During the third week of typhoid fever symptoms of cholecystitis developed. At operation seven small, round, soft and friable biliary concretions, 1 to 3 mm. in size, were found in the gall-bladder. Cultures from their centers yielded a pure growth of *Bacillus typhosus*.

In the present case there was probably an attack of paratyphoid rather than typhoid fever in 1895, and the gall-bladder harbored the paratyphoid bacilli for four years. I have studied a case of typhoid cholecystitis in which it appeared probable that the typhoid bacilli had been in the gall-bladder for seven years. Droba¹⁴ reported a case in which the typhoid bacillus was obtained seventeen years subsequent to primary infection.

Professor Theobald Smith has told me that at first there was a minor cultural difference between the bacillus from the gall-stones and the one from the gall-bladder, in that the former produced a film on bouillon while the latter did not. This seems to prove that the bacilli had not simply penetrated pre-formed porous gall-stones, but that they were imprisoned within the stones which had formed about them, and in four years the property of film formation had been acquired. Bacilli from both sources possessed the same agglutinating power.

Only the salient features of the third case will be given, as it is to be reported in detail by Dr. Henry Jackson and the writer in another place.

CASE III. *Paratyphoid fever; mild course; saphenous phlebitis; recovery.* D. B., male, aged thirty-eight years. Private patient of Dr. Henry Jackson. On Oct. 28, 1902, seized with sharp pain over the umbilicus and region of appendix. He came to Boston Oct. 30. That morning the temperature was 102°, the pulse 80. There was slight abdominal tenderness; spleen not palpable, but enlarged on percussion. No rose-spots developed. The temperature gradually fell but there was some fever for over two weeks. There was slight tendency to constipation. The pulse was not accelerated. The Widal test was negative. There was no leucocytosis. During the third week saphenous phlebitis of the left leg developed.

Bacteriological examination.—On Nov. 19, 8 cc. of blood were withdrawn from the left median basilic vein and distributed among three Erlenmeyer flasks, each containing 150 cc. of bouillon. The flasks remained sterile.

Nov. 20: The blood serum in 1:10 dilution shows some clumping of typhoid bacilli without entire loss of motility in one hour. No clumping in 1:20 dilution.

Nov. 29: Serum agglutinated *Bacillus Kay* (gall-stone), obtained from Case II, completely, with absolute cessation of motility in dilution 1:100. Cultures from the urine were negative. From the feces a typical *Bacillus coli* only obtained. It was not agglutinated by the patient's serum in 1:10 dilution.

Nov. 30: The action of the serum toward various strains of paratyphoid bacilli was test. The results are given in the table on opposite page.

These results can be summed up in the statement that the serum agglutinated the α paratyphoids in high dilutions and failed to agglutinate the β paratyphoids and the typhoid bacillus even in a very low dilution. The importance for diagnosis of testing the blood with both groups of paratyphoids is strikingly shown.

SPECIES OF ORGANISM.	STRAIN.	DILUTIONS OF SERUM.				
		1:10	1:100	1:500	1:1000	1:2000
<i>B. paratyphosus</i> α	Gwyn	—	—	—	—	—
	Schottmüller's	—	—	—	—	—
	Müller	—	—	—	—	—
	Buxton's Case 7	—	—	—	—	—
<i>B. paratyphosus</i> (Intermediate between α and β)	Buxton's Bacillus from Normal Feces	—	—	—	—	—
<i>B. paratyphosus</i> β	Cushing's Bacillus O	—	—	—	—	—
	Bacillus Kay (gallstone)	+	+	+	—	—
	Bacillus Kay (gallbladder)	+	+	+	—	—
	Kurth	+	+	+	—	—
	Hünemann	+	+	+	+	—

ETIOLOGY.

During the past year, especially during the last six months, numerous instances of paratyphoid infection have been recorded, until now this rapidly growing group numbers 84 cases.

The disease has a wide geographical distribution. Cases have occurred in France, Germany, Holland, Roumania, England, the Philippine Islands and on this continent in Baltimore, Philadelphia, New York and Cleveland. The three cases here reported originated in Cuba, Massachusetts, and Rhode Island.

V. Sion and V. Negel¹⁵ found the microorganism in a well from which the infected individuals obtained their drinking water. Likewise in the cases reported by De Feyfer and Kayser¹⁶ infection was through the water-supply. Hünemann¹⁷ showed conclusively that the disease was spread through the barracks at Saarbrück by an infected musketeer. In none of the other recorded cases was the source of the disease known, except in the case of Schottmüller's assistant, who apparently contracted the disease in the laboratory from the paratyphoid cultures with which he had been working.

Epidemics occur. A small one in four families was studied by De Feyfer and Kayser. Hünemann reported an epidemic of 88 cases.

The disease affects chiefly young adults, although children and older people are not exempt. Like typhoid fever, it prevails most extensively in the autumn.

Bacillus paratyphosus α was the causative microorganism in 12 of the cases, *Bacillus paratyphosus* β in 69; in the remaining three the species was not determined. In two instances there was a mixed infection with *Bacillus typhosus*. Although Meltzer¹⁸ thinks a mixed infection with *Bacillus paratyphosus* is not uncommon in typhoid fever, little evidence can be adduced in support of this view.

The observation has been made repeatedly that recovery from one attack of typhoid fever confers relative protection against a subsequent attack. Many instances, however, of two attacks in one person have been recorded. Curschmann¹⁹ states that in his experience two attacks have been by no means rare, and Eichhorst,²⁰ who has made a careful study of the subject, found among 666 cases of typhoid fever 28—4.2%—in whom a second attack had occurred. The interval between the attacks may be short, only nine months in two of

Curschmann's cases and three months in one reported by Eichhorst. This marked difference from the complete immunity which exists for some time after recovery from the acute exanthemata has led some to deny that any immunity is acquired from an attack of typhoid fever.

In the recorded cases, as Coleman²¹ suggests, it is quite possible that one of the attacks was typhoid, the other paratyphoid. Brill²² reported a case of two attacks of typhoidal fever within a year. During the first illness the Grünbaum-Widal reaction was present but not during the second. The latter was probably paratyphoid, as it occurred during an epidemic of 17 cases which he regards as paratyphoid, although the evidence is not complete.²³

PATHOLOGY.

The disease is a general infection in which localizing lesions may be absent. Only four of the cases were fatal and one of these was a secondary infection in a case of typhoid fever. In the remaining three cases there were no ulcers in the intestine and the Peyer's patches and solitary follicles were normal. The fact that there was intestinal hemorrhage in five of the cases would seem to indicate that lesions of the intestine do sometimes occur.

The spleen was enlarged. In Strong's case²⁴ alone were the mesenteric lymph glands swollen, and he admits that the paratyphoid bacillus, which he isolated from the spleen, may have been a post-mortem invader. In the two fatal cases of undoubted paratyphoid fever the bacillus was not found in the mesenteric lymph nodes, but it was present in the heart's blood, liver, lungs and spleen. V. Sion and V. Negel¹⁵ recovered it also from the adrenal, cerebral cortex, an area of cerebral softening, pericardial and pleuritic fluids and a cardiac thrombus.

In Longcope's²⁵ case a histological study was made and the characteristic endothelial proliferation of the lymphoid tissue described by Mallory²⁶ in typhoid fever was absent.

The fatal cases were all instances of infection with the β paratyphoid.

Possibly some of the reported cases of typhoid fever without intestinal lesions were examples of paratyphoid infection. Ophüls²⁷ has pointed out that in very few of the cases was the bacteriological examination sufficient to differentiate clearly the typhoid bacillus from its allies.

SYMPTOMATOLOGY.

Paratyphoid infection may present all the clinical aspects of typhoid fever. Although the fever may be severe, and fatal cases have occurred, it is usually mild. Kurth²⁸ proposed to revive the term "gastric fever" for this disease. Doubtless some of the cases of gastric fever and febricula of the older writers were examples of paratyphoid. An afebrile case has been reported by De Feyfer and Kayser.¹⁶ Johnston²⁹ analyzed the clinical features of the cases recorded up to June, 1902. He concluded that diarrhea and a termination of the fever by crises were apparently of more frequent occurrence than in typhoid fever. The duration of the disease has been from twelve to eighty-four days. There have been chills at onset. An initial

bronchitis has not been uncommon. Epistaxis has been noted in a number of instances. First and second relapses have occurred. Rose-spots and a palpable spleen have been present in about half the cases. Labial herpes was observed in two cases. The pulse was usually slow and regular. In uncomplicated cases the blood showed no leucocytosis. The urine frequently contained albumin.

COMPLICATIONS.

The number and frequency of the complications is a striking feature of paratyphoid fever. All three of our cases presented them: orchitis in the first, gall-stone formation in the second and phlebitis in the third. Excluding Hünemann's 38 cases, the clinical details of which have not yet been published, 40% of the remaining 46 reported cases exhibited complications. This proportion is doubtless too high. It is not probable that 40% of all the cases of paratyphoid fever that occur present complications. It should be remembered that many of the cases would have been regarded as examples of typhoid fever had not the complications occurred. Then the bacteriological examinations revealed the true nature of the infection.

LIST OF COMPLICATIONS IN PARATYPHOID FEVER.

Infection with Bacillus paratyphosus β.

Bronchitis,	4 cases
Hypostatic pneumonia,	1 case
Lobar pneumonia,	1 case
Pleuritis,	2 cases
Acute mural endocarditis,	1 case
Thrombosis of femoral vein,	1 case
Embolie softening of brain,	1 case
Saphenous phlebitis,	1 case
Meningitis,	1 case
Peritonitis,	1 case
Intestinal hemorrhage,	5 cases
Suppurative cholecystitis,	1 case
Chronic cholecystitis,	1 case
Cholelithiasis,	1 case
Nephritis,	1 case
Suppurative orchitis,	1 case
Cystitis,	2 cases
Decubitus,	1 case
Furunculosis,	1 case
Osteomyelitis,	1 case
Total,	29 cases

Infection with Bacillus paratyphosus α.

Bronchitis,	1 case
Broncho-pneumonia,	1 case
Cystitis,	1 case
Thrombosis of femoral vein,	1 case
Intestinal hemorrhage,	2 cases
Total,	6 cases

Infection with paratyphoid bacillus; species not determined.

Bronchitis,	1 case
Femoral phlebitis,	1 case
Myositis,	1 case
Suppurative arthritis,	1 case
Cystitis or pyelonephritis,	1 case
Abscess of neck,	1 case
Total,	6 cases

DIAGNOSIS.

Our knowledge of paratyphoid fever is largely due to the introduction of the practice of making cul-

tures from the blood during life. This procedure is now known to be a valuable means of early diagnosis in typhoid fever at a time when the clinical picture may not be clear and the serum reaction has not developed. The typhoid bacillus is present in the blood very early in the disease and at the onset of the relapse. Hewlett³⁰ pointed this out in 1901, and his observations have been confirmed by Schottmüller³¹ and others. Kerr and Harris³² state that in 37% of their cases blood cultures were positive before the Widal test. The paratyphoid bacillus, likewise, can be recovered from the blood early in paratyphoid fever. Blood withdrawn late in the disease is usually sterile.

In quite a number of instances the diagnosis has been made by cultivating the bacillus from the urine or feces and demonstrating that it was agglutinated by the individual's blood. In the case reported by Brion and Kayser³³ the microorganism was isolated from the vagina and rose-spots as well as from the blood, urine and feces. V. Sion and V. Negel obtained it from the sputum in one of their cases.

The surest way of making the diagnosis is to cultivate the paratyphoid bacillus from the blood of the suspected case. But if the organism cannot be recovered from the blood, urine, feces or some localized lesion the diagnosis is justified, in the light of our present knowledge, if the blood agglutinates a paratyphoid bacillus in high dilution and fails to agglutinate the typhoid bacillus or agglutinates it only in very low dilutions. The blood should be tested with both species of paratyphoid bacilli. The necessity of this is shown in our Case III, in which the serum gave a negative reaction with the α paratyphoid in 1:10 dilution, but completely clumped the β paratyphoids in as high a dilution as 1:500.

Our experience shows that a positive reaction in low dilutions cannot be accepted as evidence of paratyphoid infection. I recently studied a case of influenza simulating typhoid fever in which the blood quickly clumped B. paratyphosus β (Kay), with absolute cessation of motility in dilution 1:10. Tests in higher dilutions, 1:20 and 1:80, were negative. Bouillon flasks inoculated with blood from the median basilic vein remained sterile. In a week the agglutinative power was lost.

Bain, working in Dr. F. C. Shattuck's wards at the Massachusetts Hospital, found a case of typhoidal fever, the blood of which agglutinated B. paratyphosus β (Kay) immediately and completely in dilution 1:10. In higher dilutions, up to 1:200, there was clumping without loss of motility. There was no reaction with the typhoid bacillus in dilution 1:10. A culture from the blood, however, yielded a pure, abundant growth of B. typhosus. The case died. Unfortunately no autopsy was obtained.

Cases of paratyphoid fever have without doubt been mistaken for true typhoid fever because the Grünbaum-Widal reaction in as low a dilution as 1:10 has been accepted as conclusive evidence of typhoid infection. Stern³⁴ showed several years ago that a reaction in dilutions of less than 1:80 is unreliable.

When serum agglutinates one species in very high dilution it frequently is able to agglutinate closely related species in low dilution. This has

been proved by animal experiments and it is shown by the following observations*:

Serum from a typhoid fever patient agglutinated our stock typhoid bacillus in a dilution of 1:8000, another strain of typhoid bacillus 1:3000, an atypical typhoid bacillus 1:250, the β paratyphoid bacillus obtained from the case of typhoid orchitis, Bacillus 48, 1:50. It failed to agglutinate a race of Bacillus coli obtained from normal feces in a dilution of 1:5.

These results show clearly that the serum reaction is a special, not a specific test. In reporting the result of the serum-test the simple assertion that the Widal reaction is positive does not suffice. Little weight can be attached to such a report in distinguishing typhoid from paratyphoid fever. The dilution, the extent of clumping, the presence or absence of motility and the time-limit should be recorded.

PROGNOSIS.

The death rate is low. It is apparently much lower than in typhoid fever, although broad conclusions cannot be drawn from a limited number of cases. Only three deaths—3.6%—have occurred among the 83 undoubted cases of paratyphoid infection and one of these was a mixed infection with Bacillus typhosus.

TABULATION OF RECORDED CASES.

1896. Archard and Bensaude,⁷ Paris.

CASE I. Female, aged twenty-four years. Continued fever. Complications: myositis; double femoral phlebitis, pyelonephritis or cystitis. Paratyphoid bacillus from urine.

CASE II. Female, aged seven months. Continued fever. Complications: bronchitis; purulent arthritis of right sternoclavicular joint. Paratyphoid bacillus from pus in joint.

1897. Widal and Nobécourt,⁶ Paris.

CASE III. Male, aged thirty-one years. Abscess in neighborhood of thyroid. Paratyphoid bacillus from pus.

1898. Gwyn,¹ Baltimore.

CASE IV. Male, aged twenty-eight years. Continued fever; severe course. Complication: intestinal hemorrhages. B. paratyphosus α from blood.

1900. Cushing,² Baltimore.

CASE V. Male, aged twenty-seven years. Costochondral abscess following supposed attack of typhoid fever. B. paratyphosus (intermediate in type between α and β) from pus.

1900. Schottmüller,³⁵ Hamburg.

CASE VI. Male, aged twenty-six years. Continued fever. B. paratyphosus α from blood.

1901. Schottmüller,⁸ Hamburg.

CASE VII. Male, aged sixty years. Continued fever. Complication: hypostatic pneumonia. B. paratyphosus β from blood.

CASE VIII. Male, aged eighteen years. Continued fever; severe course. Complications: bronchitis; slight nephritis. B. paratyphosus β from blood.

CASE IX. Male, aged nineteen years. Continued fever. B. paratyphosus β from blood.

* The serum I used possessed greater agglutinative power than any other I have tested. No reaction was accepted as positive unless the bacilli were aggregated into large clumps and there was absolute cessation of motility. The time limit was one hour, but the positive reactions were almost always obtained within the first fifteen minutes. All the tests were made the same day.

CASE X. Male, aged forty-six years. Continued fever. B. paratyphosus α from blood.

CASE XI. Male, aged fifteen years. Continued fever; severe course. Complications: bronchitis; decubitus. B. paratyphosus β from blood.

CASE XII. Male, aged twenty-five years. Continued fever. Serum agglutinated B. paratyphosus β , dilution 1:100.

1901. Kurth,³⁸ Bremen.

CASE XIII. Female, aged thirty years. Continued fever. B. paratyphosus β from urine.

CASE XIV. Male, aged twenty-nine years. Continued fever. B. paratyphosus from feces.

CASE XV. Male, aged twenty-five years. Continued fever. Serum agglutinated B. paratyphosus β , dilution 1:500.

CASE XVI. Male, aged eighteen years. Continued fever. Serum agglutinated B. paratyphosus β , dilution 1:500.

CASE XVII. Female, aged twenty-three years. Evening febrile temperature. Serum agglutinated B. paratyphosus β ; dilution 1:250.

1902. Brion and Kayser,³³ Strasburg.

CASE XVIII. Female, aged sixteen years. Continued fever; two relapses; venous thrombosis, left leg. B. paratyphosus from blood, urine, feces, vagina and rose-spots.

Strong,³⁴ Santa Cruz, Philippines.

CASE XIX. Male. Continued fever. Intestinal hemorrhage. Death. Autopsy. B. paratyphosus β from spleen.

Coleman and Buxton,³⁷ New York.

CASE XX. Female, aged twenty-eight years. Continued fever. B. paratyphosus α from blood.

Berg and Libman,³⁸ New York.

CASE XXI. Male, aged thirty-three years. Typhoid fever; secondary paratyphoid infection. Complications: pleuritis and peritonitis. Death. B. paratyphosus β isolated from gall-bladder, blood and urine during life; agglutinated in dilution of 1:20 only. B. typhosus 1:250.

Hume,³⁹ Liverpool.

CASE XXII. Male, aged twenty-nine years. Continued fever; relapse. Complications: intestinal hemorrhage; cystitis. B. paratyphosus α from urine and feces.

Johnston,³⁹ Baltimore.

CASE XXIII. Male, aged twenty-eight years. Continued fever. B. paratyphosus α from blood.

CASE XXIV. Male, aged twenty-three years. Continued fever. B. paratyphosus α from blood.

CASE XXV. Female, aged twenty-three years. Serum agglutinates B. paratyphosus α , dilution 1:50.

CASE XXVI. Male, aged twenty years. Continued fever. Serum agglutinated B. paratyphosus α , dilution 1:400.

Hewlett,³⁶ New York.

CASE XXVII. Male, aged thirty-four years. Continued fever; relapse. Complication: bronchopneumonia. B. paratyphosus α from blood.

Longcope,³⁵ Philadelphia.

CASE XXIX. Male, aged twenty-two years. Continued fever; severe course. Death. B. paratyphosus β from blood during life, and at autopsy from heart's blood, lung, liver and spleen.

CASE XXX. Male, aged thirty-five years. Continued fever; relapse. B. paratyphosus α from blood.

Hünemann,¹⁷ Saarbrück, Germany.

CASES XXXI to LXVII. Epidemic of continued fever. A bacteriological study. Clinical aspects to be described in another paper. B. paratyphosus β isolated from stools of one patient and urine of another.

De Feyfer and Kayser,¹⁶ Erbergen, Holland.

The following six cases occurred in an epidemic of fourteen cases affecting four families. As bacteriological tests were not made in the other eight cases, they are not included.

CASE LXVIII. Female, aged nine years. Continued fever; severe course. Serum agglutinated *B. paratyphosus* β , dilution 1:360.

CASE LXIX. Male, aged six years. Continued fever; glandular swelling. Blood agglutinated *B. paratyphosus* β , dilution 1:720.

CASE LXX. Male, aged forty years. Continued fever. Complication: intestinal hemorrhage. Blood agglutinated *B. paratyphosus* β , dilution 1:1440.

CASE LXXI. Male, aged forty-four years. Continued fever. Complication: intestinal hemorrhage. Blood agglutinated *B. paratyphosus* β , dilution 1:7200.

CASE LXXII. Female, aged fifty-four years. Apyrexia; rapid pulse, rose-spots, diazo reaction, diarrhea. Mixed infection. Blood agglutinated *B. typhosus*, dilution 1:720; *B. paratyphosus* β , dilution 1:1440.

CASE LXXIII. Male, aged fifteen years. Continued fever. Blood agglutinated *B. paratyphosus* β , dilution 1:720.

V. Sion and V. Negel,¹⁵ Jassy, Roumania.

CASE LXXIV. Male, aged twenty-four years. Continued fever. Death. Complications: acute mural endocarditis; sero-fibrinous pleuritis; bronchopneumonia; diphtheritic enteritis; meningitis; embolic softening of brain. *B. paratyphosus* β at autopsy, from cerebral cortex, area of cerebral softening, heart's blood, cardiac thrombus, pericardial and pleuritic fluids, liver, spleen, adrenal and bronchi.

CASE LXXV. Male, aged forty years. Continued fever. *B. paratyphosus* β from blood.

CASE LXXVI. Child, aged four years. Continued fever; severe course. Complication: bronchitis. *B. paratyphosus* β from blood.

CASE LXXVII. Child, aged six years. Continued fever. Complication: bronchitis. *B. paratyphosus* β from blood.

CASE LXXVIII. Child, aged eight years. Continued fever. *B. paratyphosus* β from blood and sputum.

1903. Allen,⁴¹ Cleveland.

CASE LXXIX. Male, aged thirty years. Continued fever. Complications: suppurative cholecystitis, lobar pneumonia. *B. paratyphosus* β from pus in gall-bladder.

CASE LXXX. Male, aged twenty-six years. Continued fever. Complication: cystitis, thrombosis of left femoral vein. *B. paratyphosus* β from blood and urine.

CASE LXXXI. Male, aged thirty-five years. Continued fever. Serum agglutinated *B. paratyphosus* β in dilution 1:50.

Pratt, Boston.

CASE LXXXII. Male, aged twenty-three years. Suppurative orchitis following attack of supposed typhoid fever. *B. paratyphosus* β from pus.

CASE LXXXIII. Female, aged eighteen years. Chronic cholecystitis and cholelithiasis. Supposed attack of typhoid fever four years before. *B. paratyphosus* β from gall-stones and fluid in gall-bladder.

CASE LXXXIV. Male, aged thirty-eight years. Continued fever; saphenous phlebitis.

I am greatly indebted to Professor Theobald Smith of Harvard University, Dr. B. H. Buxton of Cornell University, and Dr. N. MacL. Harris of the Johns Hopkins University for furnishing me with cultures of paratyphoid bacilli, and to Dr. Mark Richardson for notes on his case.

REFERENCES.

- ¹ Gwyn. Johns Hopkins Hosp. Bull., 1898, vol. ix, p. 64.
- ² Cushing. *Ibid.*, 1900, vol. xi, p. 158.
- ³ Durham. Journ. of Exp. Med., 1901, vol. v, p. 358.
- ⁴ Buxton. Journ. of Med. Research, 1902, vol. viii, p. 301.
- ⁵ Gilbert. Semaine médicale, 1896, p. 1.
- ⁶ Widal and Nobécourt. *Ibid.*, 1897, p. 286.

- ⁷ Archard and Bensaude. Bull. et mém. de la Soc. méd. des hôpitaux de Paris, 1896, vol. xiii, p. 830.
- ⁸ Schottmüller. Zeitsch. für Hygiene, 1901, vol. xxxvi, p. 368.
- ⁹ Kinnicutt. Med. Rec., 1901, vol. lix, p. 801.
- ¹⁰ Gilbert and Fournier. Compt. rend. Soc. de biol., 1897, p. 986.
- ¹¹ Richardson. Journ. of the Boston Soc. of Med. Sci., 1899, vol. iii, p. 79.
- ¹² Cushing. Johns Hopkins Hosp. Bull., 1899, vol. x, p. 168.
- ¹³ Pratt. Amer. Journ. of the Med. Sci., 1901, vol. cxxii, p. 864.
- ¹⁴ Drobá. Wiener klin. Woch., 1899, p. 1141.
- ¹⁵ V. Sion and V. Negel. Centralblatt für Bakteriologie, 1903, vol. xxxii, pp. 483, 531.
- ¹⁶ De Feyfer and Kayser. Münchener med. Woch., 1902, vol. xlix, p. 1692.
- ¹⁷ Hünermann. Zeitsch. für Hygiene, 1902, vol. xl, p. 622.
- ¹⁸ Meltzer. N. Y. Med. Journ., 1902, vol. lxxv, p. 128.
- ¹⁹ Gurschmann. Typhoid and Typhus Fever. Nothnagel's Encyclopedia, American edition, Philadelphia, 1901, p. 87.
- ²⁰ Eichhorst. Virchow's Archiv., 1888, vol. cxl, p. 48.
- ²¹ Coleman. Amer. Med., 1902, vol. iv, p. 498.
- ²² Brill. N. Y. Med. Journ., 1902, vol. lxxvii, pp. 48, 77.
- ²³ Brill. Med. Rec., 1902, vol. lxi, p. 841.
- ²⁴ Strong. Johns Hopkins Hosp. Bull., 1902, vol. xiii, p. 107.
- ²⁵ Longcope. Amer. Journ. of the Med. Sci., vol. cxxiv, p. 308.
- ²⁶ Mallory. Journ. of Exp. Med., 1902, vol. lli, p. 611.
- ²⁷ Ophüls. N. Y. Med. Journ., 1900, vol. lxxi, p. 739.
- ²⁸ Kurth. Deutsche med. Woch., 1901, p. 601.
- ²⁹ Johnston. Amer. Journ. of the Med. Sci., 1902, vol. cxxiv, p. 187.
- ³⁰ Hewlett. Med. Rec., 1901, vol. lx, p. 849.
- ³¹ Schottmüller. Münch. med. Woch., 1902, vol. xlix, p. 1861.
- ³² Kerr and Harris. Med. News, 1902, vol. lxxxi, p. 709.
- ³³ Brion and Kayser. Münch. med. Woch., 1902, vol. xlix, p. 611.
- ³⁴ Stern. Berl. klin. Woch., 1897, p. 226.
- ³⁵ Schottmüller. Deutsche med. Woch., 1900, vol. xxvi, p. 511.
- ³⁶ Hewlett. Amer. Journ. of the Med. Sci., 1902, vol. cxxiv, p. 300.
- ³⁷ Coleman and Buxton. *Ibid.*, 1902, vol. cxxiii, p. 878.
- ³⁸ Berg and Libman. Journ. of the Amer. Med. Asso., 1902, vol. xxxviii, p. 1486.
- ³⁹ Hume. Report of the Thompson Yates Laboratories, Liverpool, 1902, vol. iv, p. 888.
- ⁴⁰ Allen. Amer. Journ. of the Med. Sci., 1903, vol. cxxv, p. 96.

TYPHOID FEVER AT THE BOSTON CITY HOSPITAL IN 1902.¹

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In reply to the request of your committee to speak to-night of our experience at the City Hospital with typhoid fever during the current epidemic, it will be impossible within the limited time assigned me to give full statistics of the symptoms and complications. The subject can be presented only along the broadest lines, though special consideration will be given to some of the more important and interesting features of the disease.

From the 1st of June to the 15th of November 203 cases have been admitted to the medical side of the hospital. A few still remain in the wards and have not yet passed the period when accidents are impossible, so that a slight modification of some of the figures presented may be required later.

One hundred and thirty-nine of these patients were males, 64 females, about 2 to 1, a disproportion attributable more to the fact that women with this disease seek hospital treatment less often than men, than to their greater immunity.

Although children form a very small part of the City Hospital clinic, there being but 19 among these cases under sixteen years of age, 136 (nearly 70 %) were found within the first three decades, and only 11 were over forty. The oldest patient was sixty; the youngest nine.

Previous attacks were recorded in six instances, but as the diagnosis rests on the authority of the patient it must be accepted with caution.

While a great majority of cases began insidiously, there seemed to be an unusual number in which the attack was stated to have been suddenly ushered in by severe headache, a chill, or an attack of diarrhea. This could be only partially attributed to the occasional neglect of hospital patients to take

¹ Read at the Boston Medical Library, Dec. 15, 1902.

notice of symptoms which did not interfere with their daily occupation. Two began with pneumonia and conformed to the type described by the French as pneumo-typhoid; another started with a general erythema, and raised the question of scarlet fever. Diarrhea and constipation were present in almost exactly the same number of cases. Epistaxis was noted 37 times; chills occurred in 41 instances. Abdominal pain was so frequent that it should be classed as one of the important symptoms, being recorded in 65 cases, in many of which, however, it amounted to little more than discomfort or an attack of cramps, yet in a few it more or less dominated the situation and led to considerable difficulty in diagnosis, especially when it was located in the right lower quadrant.

A study of the temperature charts showed little which might differ from any similar collection of cases, but the occurrence of defervescence by crisis in two instances is worthy of mention. Hyperpyrexia, represented by a temperature of 107° or even 108° just before death, was occasionally recorded, yet 107.5° was reached in one instance without discoverable cause and without interrupting the patient's progress toward recovery. Hemorrhage occurred in 14 cases, 4 of which ended fatally, and perforation in 3. All of the latter were transferred to the surgical side, and all died. A detailed report of these is out of place, as the subject has been assigned to Dr. Munro.

The great difficulty at times encountered in making a positive diagnosis of this condition was well illustrated in one patient, who was in the beginning of the third week and critically ill. He had suffered for two evenings from considerable abdominal pain, with some rigidity and tenderness and moderate distension, which was relieved by external applications. At 9 o'clock on the morning of the third day he was suddenly seized by intense cutting pain in the left hypochondrium, accompanied by a chill. The abdomen became very rigid and tender. He was somewhat cyanotic, with a rapid and feeble pulse. Later he became more comfortable, and while considerable tenderness persisted the spasm relaxed. An hourly white count begun at the time of the chill showed 3,400, 3,200, 5,000 and 5,200. One of the surgeons who saw him diagnosed perforation and advised operation.

While recovery from perforation may be possible with purely medical means, it is so exceptional that it may be ignored in discussing its treatment. Operation alone holds out any practical hope of cure, and the earlier the condition is recognized the better for the patient. The criticism of our surgical colleagues, that by waiting for a positive diagnosis they are often called so late that a general infection of the peritoneum has already taken place, is unfortunately just, but the burden of proof still rests with them to show that more lives would be saved by a hasty resort to abdominal section in doubtful cases, than by delaying until the situation has declared itself. Surgical technique may be so perfect that an exploratory laparotomy is practically devoid of danger under ordinary circumstances; but a typhoid patient who has been ill so long as to make perforation probable has necessarily lost much of his resisting power, and very persuasive arguments are needed before a conviction can be

reached that the chances of these doubtful cases are improved by operation.

A notable feature, which was observed in some cases where a chart was kept of the daily amount of urine, was the marked increase in the quantity as convalescence set in, which might begin before either the pulse or temperature had begun to fall, and at times proved a valuable aid in prognosis. Desquamation was not uncommon, but was infrequently noted in the records.

The complications covered a wide range. The most frequent were otitis media (11 cases), phlebitis (12), inflammation of the pharynx, including the tonsils and larynx (5), pneumonia (12), pleurisy (6), and furunculosis (6). Periostritis (1), perichondritis (1), parotitis (1), adenitis (3), meningitis (1), neuritis of the legs (1), perirectal abscess (1) and inflammation of the cornea, with loss of the eye (1), comprised the rarer ones. Cholecystitis was suspected in three cases, from the presence of pain and tenderness in the region of the gall bladder. The latter seemed somewhat distended in one, and in one there was slight jaundice. The following infectious diseases were coincident: pulmonary tuberculosis (4), syphilis (2), tertian malaria (2) and erysipelas (1). Three women were pregnant, but recovered without aborting.

Six cases of psychical disturbance coming on late in the disease or during convalescence formed an interesting group, some of which were slight and attributable to the persistence of a vivid typhoidal dream, which had left so deep an impression as to become a motive for action, while others were more serious, and were accompanied by various hallucinations, depression, mental confusion or even acute mania.

The former condition is undoubtedly more common than these figures indicate, but does not attract attention because it does not lead to any striking peculiarity of behavior; but the embarrassing or even serious complications, which might follow failure to recognize it, were illustrated in one case where the patient's mental state was supposed to be normal, until some checks which he had made out, one of which was in payment of his hospital bill, were returned for lack of funds. It then came out that he had dreamed during the fever that a deposit of \$10,000 had been placed to his credit at the bank, and he was drawing against it. All were improving when last heard from, with one exception, a case of dementia precox, for which her typhoid could not be held responsible, though it appeared to be the occasion for a lighting up of the symptoms.

The prevalence of relapse depends more or less on the interpretation of the recrudescences of fever, which are not unusual during convalescence, as a result of a variety of causes beside a reinfection. The distinction may be difficult if not impossible. The characteristic step-like elevation of temperature may be seen in other conditions, while the diagnostic value of an enlarged spleen may be lost if it has never diminished, and rose spots may not reappear if the elevation of temperature lasts but a week. A conservative estimate places the number of cases with relapse at twenty, of which six were intercurrent, the afternoon temperature never hav-

ing reached normal. The largest number of relapses was three. Some of the cases, however, are still in the hospital, and have not yet reached the point where the process may not be again relighted. They followed the usual course, and as a rule were less serious than the original attack, but exceptions were found, in one of which a severe hemorrhage put the patient's life in considerable jeopardy. None of these cases died.

The Widal test was positive in 168 cases (83.5%) and negative in 33. In two it was not tried. This is a smaller proportion than has previously been obtained at the hospital, or should be expected. Its absence was undoubtedly due in some to failure to seek the reaction over a sufficiently long period. An interesting group, small in number, remains in which the diagnosis of typhoid was made, though with some reservation, because they conformed more closely to that than to any other disease. They suggest the possibility that the infecting agent was not Eberth's bacillus, but one of the same family, and show the necessity of closer clinical and laboratory study.

The failure of the test as an aid in the early diagnosis was not infrequently exemplified, for it was not found in eight fatal cases, one of which was verified by autopsy, and was often first obtained so late that the nature of the disease was already evident, or even after convalescence was fully established, yet it proved at times of great value in doubtful cases, especially in those where some special feature had become so prominent as to be misleading. This has been well illustrated during the past year in cases which began suddenly with an attack of pleurisy or pneumonia. Its earliest appearance was the third day after the onset of the first symptoms; its latest, the sixtieth day. In the first instance the patient was a girl of thirteen, in whom the disease began suddenly with chills, nausea and headache.

Leucocyte counts were made in almost every case, usually during the first few days after admission, more rarely later unless some complication was suspected. The results are in line with the recognized fact that typhoid fever is not associated with a leucocytosis, since in 177, when no complication was suspected at the time, they numbered less than 8,000 in 145, and in 21 they were below 4,000; in 29 they were between 8,000 and 10,000, and in only 9 did they exceed the latter figure. The largest number was 15,000, but cases with leucocytosis are so infrequent that it seems probable that when it exists some complication is present, but unrecognized. They are of special clinical interest in showing that typhoid fever as a possible diagnosis cannot be excluded by a moderately high white count.

Twenty-six deaths (12.8%) occurred, for three of which perforation was responsible. Pneumonia was a distinct factor in nine, pulmonary tuberculosis in two, and meningitis in one. The others were due to the severity of the infection, with hemorrhage a contributing cause in four and alcoholism in one. Three entered moribund and died within forty-eight hours. Though the number of males was double that of females, the number of deaths in both sexes was almost the same, 14 and 12 respectively, giving a mortality of 10% among

the former to 18.7 among the latter. No conclusions can be drawn as to the influence of age on the death-rate, owing to the small number of cases in each decade, but the fact that four of the eleven who were over forty died is worth mentioning. Four only came to autopsy, in two of which the bacillus typhosus was found in the heart's blood; in the others it did not appear in the cultures from any of the organs. The process had invaded the colon in two and the cecum in three, in one of which the latter was transformed into an ulcerated pouch. The appendix was affected in two, an anatomical condition which may account in some instances for the abdominal pain of which so many of the patients complained, especially where it was located in the right iliac fossa, and where, when accompanied by local tenderness, a diagnosis between typhoid and appendicitis is difficult.

Two epidemics, apparently arising from a common source of infection, were represented in these patients. One occurred among the young people of a colored church, who went down the harbor on an excursion. Six cases came under the care of Dr. S. F. Courtney and three were sent to the hospital. One of the amusements indulged in was digging clams, which were afterwards eaten, and to them suspicion points as the cause of the disease. The other epidemic broke out among the boarders in a South End restaurant, and some 80 were affected, of whom 12 entered the hospital. The dissemination of the disease was traced to two of the maids who kept at work during the early stage of the disease, and whose uncleanly habits led to infection of the food.

The treatment employed may be dismissed in a few words; with several men in charge of the wards, it naturally varied somewhat in details, but on the whole was purely symptomatic. Cold sponges, occasionally a fan bath, were ordered when the temperature reached 102.5°. Tubs were not used. Intestinal antiseptics were given when indicated, and cardiac stimulants were freely ordered in the more serious cases, but less alcohol was used than several years ago. Milk formed the staple article of food, but considerable latitude in diet was permitted in some of the services. It is noteworthy as showing the change in medical opinion which has occurred during a comparatively few years, that no mention of the surreptitious banana or other baleful article of food as the cause of relapse was noticed.

TYPHOID FEVER AT THE MASSACHUSETTS GENERAL HOSPITAL.¹

BY HERMAN F. VICKERY, M.D., BOSTON,
Visiting Physician, Massachusetts General Hospital.

DURING my service at the Massachusetts General Hospital from July 1 to Nov. 1, 1902, there were under my care 49 cases of typhoid fever, of which three proved fatal, making a fatality of 6%. Of these, 32 ran an uncomplicated course. Among the other 17 there were six cases of relapse; two of phlebitis; two of suppurative otitis media; four with abscesses; three with hemorrhages, of

¹ Read at the Boston Medical Library, Dec. 15, 1902.

which one was fatal; one with mania; one with typhoid spine; one with pneumonia, proving fatal.

In general, the cases were characterized by mildness and a successful termination. Five cases came from a group of about 30, who boarded in one house on Columbus Avenue. The etiology of these last cases is still under investigation, and will doubtless be reported later.

In the observation of my 49 cases, the possibility of paratyphoid infection was borne in mind, but in no case was the diagnosis of this condition possible, because our pathological department had not yet in its possession cultures of the paratyphoid bacillus.

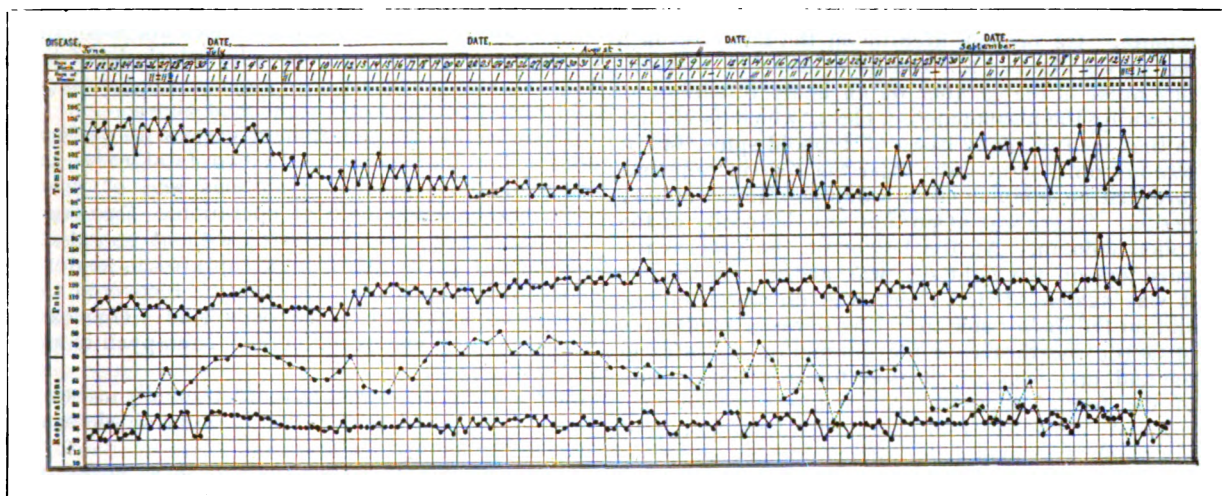
Forty-one cases gave a positive Widal reaction. In one case of probable typhoid no thorough examination was possible, because the patient insisted on leaving the hospital within twenty-four hours of his entrance, against advice. In the other seven there were repeated unsuccessful attempts to obtain a Widal reaction.

A diazo test was invariably made as a matter of

The youngest patient in the series was a girl of three years, with a positive Widal reaction, suppuration in both ears, and a white count of 8,800; later deep abscesses developed and the number of leucocytes increased to 13,000, 20,000 and 31,800, with final recovery.

Another girl of nine years was surreptitiously given an apple by her mother at a time when her temperature was 104.5°. She soon had stomach-ache, and the next day passed five ounces of blood by the rectum, and had two other smaller hemorrhages, but recovered.

The mildest case was that of a student whose family history, previous health and habits had been excellent. He was one of the Columbus Avenue cases. Entering on the fourth day, he received ten grains of calomel, followed by a Seidlitz powder. The fever did not last over eight days; and sixteen days after his attack began he was discharged, feeling, as he said, "better than for years." In his case the Widal was negative on the fourth and eighth days, but positive on the tenth.



TYPHOID SPINE.

routine. For purposes of comparison I have tabulated the results in 26 cases. In these the Widal and diazo were both positive 8 times; the Widal was positive but the diazo negative 13 times; the Widal was negative but the diazo positive in 1 case, and in 4 neither the Widal nor the diazo reaction was observed. In one case the diazo was present on the tenth day of illness, while the Widal did not appear until the twenty-fourth.

The diazo was observed in five cases, respectively, on the fifth, sixth, seventh, ninth and tenth days, and in two cases on the fifteenth day. When present it disappeared, as a rule, within a week of its first appearance, and in general it seemed to be of little assistance in making a diagnosis of typhoid fever.

One case had a peculiar onset. The patient was a teamster who had a cough for three days, but kept at work. On the fourth day while lifting a steel shaft, he felt his back give way, stopped work and went to bed. When he entered, three days later, he had a positive Widal and diazo reaction.

One patient with positive Widal and diazo reactions had a well-compensated aortic regurgitation, and ran a most satisfactory course, his pulse never reaching 100 till convalescence began.

One young woman had a mild attack, became delirious and announced that she was dead, and very consistently refused to take food, but a brief experience with forced feeding through a nasal tube induced her to swallow naturally, and she made a good recovery.

Another woman, whose husband had been insane and finally committed suicide, developed well-marked mania, and had to be fed by means of a tube for nineteen days; but she became convalescent, and was in a nearly normal condition when discharged.

One of the severest cases was that of a young servant girl who was profoundly toxic, and took nourishment very badly. No drugs seemed to have any beneficial effect upon her, except that negatively. I thought there was improvement when I omitted the strychnine which she had been receiving. Brandy, in a dose of two ounces, did not seem to

influence her in any way. She did, however, exhibit striking improvement upon the subcutaneous administration of normal salt solution, of which a pint was administered twice a day for thirteen days. Its effect was to diminish the toxic condition of her blood, so that her mind became clearer, her complexion more normal and her pulse stronger. In this case we endeavored for several days to measure the total amount of fluid ingested and excreted. On the average she received one hundred and fifty ounces in twenty-four hours, of which about ninety were returned, so that about two quarts were dissipated in the breath and perspiration. This patient, although apparently out of danger, was still very ill when my term of service expired. She has since become completely convalescent under the care of Dr. F. C. Shattuck.

The case with spinal complication was a recent graduate of the Institute of Technology, whose sister had exophthalmic goitre. He entered June 21, on the eighth day of his illness, under the care of Dr. E. G. Cutler, and pursued the ordinary course of a severe typhoid fever. I found him July 1 with nothing distinctive, except that his pulse was very dicrotic and rapid, one hundred and ten beats per minute. He became afebrile on the thirty-seventh day of his illness; thirteen days later his temperature arose in the manner of an acute infection, as shown by the accompanying chart, which is similar to that seen in many cases of typhoid spine, but it was not until eight days after the rise in temperature that he complained of a dull pain in the lumbar region. There was at no time any deformity of the spinal column. At the height of the process the knee jerk on the right side was absent; on the left it was exaggerated. There was no ankle clonus and no Babinski reaction. There was a small area of tactile anesthesia on the dorsum of the left big toe and just back of the toe, towards the dorsum of the foot; otherwise sensation was intact. He suffered very much from pain on the least motion of his trunk, and also from an involuntary twitching of his thighs. Dr. J. E. Goldthwait saw this patient in consultation and very kindly fitted him with a leather jacket, which, however, did not give the relief expected. He seemed somewhat benefited by raising the foot of the bed and fastening weights to his feet, so as to establish counter extension. After the comparatively short period of seven weeks he became convalescent, and when he left the hospital he suffered merely from a slight stiffness of the back.

Of the fatal cases one was a female nurse who had been taking care of a case of typhoid. She seemed exhausted and toxic upon entrance, with a pulse gradually increasing in rapidity, when she had repeated hemorrhages, discharging over two quarts of blood, and dying from exhaustion after the hemorrhage had apparently ceased. The autopsy showed unusually extensive ulcers in the ileum and cæcum. There was one small stone in the gall bladder. Typhoid bacilli were found in the heart-blood, the liver, spleen, gall bladder and gall stone.

A second fatal case showed typhoid bacilli in the heart-blood, spleen, a supernumerary spleen, the liver and the gall bladder, and also a pneumonia due to pneumococcus infection, involving the lower lobe of the left lung.

The third fatal case was a laborer, forty-six years old, who drank whiskey habitually in large amounts. He entered nine days after ceasing work, with dyspnea, cyanosis, *à bruit de galop*, and some consolidation at the right base. He was profoundly toxic, and developed alcoholic delirium. No autopsy was obtained.

THE CLINICAL DIAGNOSIS OF TYPHOID PERFORATION.¹

BY JOHN C. MUNRO, M.D., BOSTON,

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OF the twenty-six cases reported in this paper all but one suffered from typhoid. Twenty-one of these I have seen in consultation at the Boston City Hospital in the last four years, the greater number in the last two years. I have added five recent cases through the courtesy of members of the staff, because, of late, the observations and records are more carefully made than during the earlier years of operation for perforation.

I have purposely utilized personal cases because my private records in many instances are more detailed than those kept by the clinical clerks of the hospital, and because I have emphasized the surgical rather than the medical point of view.

There are fifteen operations in cases with perforation, with one recovery. In two fatal cases the cause of the abdominal symptoms and of death could not be determined at operation. Two cases died and three cases recovered without operation. One case of peritonitis from a ruptured mesenteric gland died, one case of cholecystitis recovered and another of supposed cholecystitis died. One case exhibiting a Widal reaction died from pyelitis and cystitis.

In reporting the cases I have intentionally included those of supposed perforation in order to show all sides of the clinical picture.

Until we operate earlier than in these cases reported, and are willing to explore, unnecessarily perchance, where symptoms of perforation exist, we are still going to have our high mortality from general peritonitis. I believe a rapid exploration through a muscle-splitting incision in a typhoid patient without peritoneal infection or serious organic lesion is practically harmless. We must make an exploratory investigation occasionally in order to save the larger number of genuine perforations by timely interference. The decision as to the ability of the patient to withstand a possible needless exploration should be decided by the surgeon and not by the physician. To quote from Osler in this respect, he says: "To leave the diagnosis of perforation to the attending physician is in too many cases to sacrifice the life of the patient."

In each of the seventeen cases of perforation, the symptoms early in the course of the fever varied a good deal. Some cases had no signs indicating abdominal disturbance; others had nausea and vomiting, slight and severe, abdominal tenderness with and without spasm, and distention with and without other signs. In other words, a combination of one or two symptoms suggesting peritoneal lesions might

¹ Read at the Boston Medical Library, Dec. 15, 1902.

or might not exist early in the disease and might or might not persist. The gauge of each individual patient must be learned. Any variation from that gauge for the worse should suggest the possibility of peritoneal infection and should not be dismissed without careful investigation.

The appearance of additional signs of peritoneal infection, along with the individual symptoms already exhibited, warrants early operation. A patient complaining of tenderness and distention suddenly developing spasm and vomiting, or chill with spasm, or any similar combination of symptoms, is probably developing a surgical lesion.

Sudden fulminating symptoms, due probably to a wholesale outpouring of feces through a large opening, were found in several of these cases. No one can be criticized for not foreseeing such an accident. There were a number of other cases, however, in which a careful cross-examination of the patient, the attendants and physicians clearly showed that there had been a number of hours' warning which had not been rightly interpreted. After-knowledge is more easily obtained than fore-knowledge, but if we assume that there is a perforation in cases with erratic symptoms and investigate our earlier history with that in view we are more likely to make a timely diagnosis.

In some cases the house physician was not notified by the night nurse for several hours after the onset of new symptoms. This lapse strongly emphasizes the lack of a sufficient nursing force at night in our hospitals, a condition that many surgeons keenly recognize.

Some cases with distention more or less habitual would be relieved by turpentine stupes or enemata. Then some additional symptoms like pain or spasm would appear and persist, even though the distention could be relieved as usual. Such a combination is a pointed one and yet it was overlooked more than once.

Some patients suddenly complaining of pain would later develop symptoms more suggestive of perforation, whereat the pain would lessen. This false sign of security was given greater weight than the case warranted.

Permission for operation, even when advised within a few hours of perforation, could not be obtained for several hours, long enough to rob the patient of practically all hope from interference. I can only suggest that in typhoid or any disease liable to be complicated by a grave surgical lesion, a full consent for operation should be obtained provisionally in each and every case at the outset, if advised by the attending physician and the consulting surgeon. Until we can bring some such rule to bear, it is inevitable that many lives must be sacrificed to the obstructive hesitation and ignorance of the patients and friends. In some of our cases operation was blocked from four to eighteen hours by delay.

We are apt to expect an immediate response in pulse and temperature with the outpouring of intestinal contents into the abdominal cavity. Theoretically, the temperature should drop and the pulse should rise at once, but as a matter of fact this does not take place by any means in all cases, and the failure to find this index where there are other equally valuable indices must not throw one off the

scent. One case, for instance, had a persistent pulse of 80 with a board-like abdomen, a symptom sufficient to overrule all contrary signs.

Spasm is a term so loosely used and so difficult of apprehension that it is not easy to reconcile many recorded statements. Personally, I believe that spasm as understood by the surgeon differs from that as interpreted by the physician, and I do not believe that the experience of the average house officer is sufficient to enable him to determine and interpret this most important sign. I frankly confess that I am by no means able to properly estimate its significance in many cases, but I believe my judgment is of more value than that of the house officer of a year's experience. And yet this one sign, rightly interpreted, is the keynote to the early detection of a perforation in a large proportion of cases. The ideal method would be that adopted at the Johns Hopkins Hospital, where the surgeon sees and studies regularly in conjunction with the physician all cases of typhoid, day by day; a difficult task if added to all our other duties, I will admit.

A leucocyte count has proven of very little value at the time when most needed. As in other abdominal infections, it is valuable when corroborative of the clinical signs.

Cases with hemorrhage were the most perplexing in my experience, and I do not know how to differentiate the symptoms of a hemorrhage from those of perforation in the early stages. That the two may coexist is only too evident, and naturally the presence of hemorrhage makes the prognosis more grave. In at least four of my cases the symptoms from hemorrhage obscured the diagnosis.

Most of the cases were explored under ether. In none of my own cases could I persuade myself that the risk of a rapid and satisfactory exploration under ether, occupying not over ten minutes, was more dangerous than operating with local anesthesia on a struggling, frightened patient.

So far as could be determined, the operations were done in one case forty-eight hours after perforation, in two cases twenty-four hours, in one case eighteen hours and in two cases twelve hours. In the case of operation within four hours there was probably a sudden, profuse gush of intestinal contents. In Thorndike's case of recovery the abdomen was opened within six hours after perforation.

Otitis and pulmonary symptoms tended to obscure the abdominal symptoms in the same way as is not infrequently observed by abdominal surgeons in other diseases.

The absence of liver dullness and the presence of flank dullness are late signs and are of little corresponding value.

The facies is not noted in the records of the hospital to any extent. In my own experience it is commonly diagnostic where there is peritonitis; less so in the early period of perforation except as influenced by pain.

A short consideration of the cases where perforation was suspected but not found, or at least not proven, may be worth while. The patient with ruptured mesenteric glands gave typical symptoms of perforation. In two cases where no perforation was found at operation nor in a partial autopsy, no definite cause of death was discovered. One of

them strongly suggested pancreatitis. Both gave typical symptoms of peritonitis from some cause.

One case with typhoid bacilli in the gall-bladder was very similar to the last cases. In the case of typical cholecystitis with operation followed by recovery, perforation was considered only as a remote possibility.

The renal case could speak no English, was very ill, and a diagnosis was made on the association of abdominal symptoms with a Widal reaction.

In two of the cases that recovered without operation I am inclined to believe that there was a perforation that healed spontaneously. It was fortunate that no operation was done in these cases, although I believe the risk of delay in a series of patients with similar symptoms would be greater than the risk of an early operation.

CASE I. Male, twenty-three years old. Perforation in fourth week. Early abdominal symptoms; slight general tenderness; no spasm. Eight days before operation, epigastric pain. Three days before operation he was grunting and groaning as though suffering from abdominal pain, but no tenderness nor spasm was found. On day of perforation, at 3.30 A.M., he had a chill with rigor, but the house physician was not notified for several hours. At 8.45 A.M. he complained of abdominal pain. Considerable resistance with general spasm was found. At 9.15 A.M. chills for three quarters of an hour with marked tenderness. At 11.30 A.M. I saw him in consultation and found evidence of a general peritonitis. Permission for operation could not be obtained until 8.30 P.M., when his condition was critical, the heart sounds being scarcely audible and the respiration rapid and superficial. There was distention with general spasm and tenderness.

Operation.—Ether. Right iliac incision. Cloudy fluid in excess. Perforation in ileum close to cecum closed with silk. Cavity containing pockets of pus in the pelvis and right iliac region flushed out thoroughly and the abdomen closed. Condition no worse at close of operation. He was somewhat better for two days. Then spasm and vomiting appeared, and he died on the fifth day. A partial autopsy showed a general peritonitis; a necrosis of the ulcer, so that the stitches had cut and there was again perforation.

This is the only case in which I have closed the abdomen, and it was tried in this case to determine if the irritation of the usual drainage might play any part in the after history. It was a mistake; the abdomen should have been drained.

CASE II. Typhoid. Perforation. Male, twenty-five years old. Perforation in sixth week. Early abdominal symptoms; some nausea and vomiting; slight iliac tenderness. Later he developed distention, relieved by turpentine stupes. Ten days before operation he developed spastic rigidity of the arms, but without abdominal symptoms. On the day of perforation at 4 P.M. the pulse became rapid and weaker, the delirium increased, and at 5 P.M. there was sudden severe abdominal pain with marked tenderness. At 6 P.M. the pulse was 160 and the temperature 104°, the abdomen being slightly distended and rigid with very marked tenderness, but he complained less of pain. I then saw him in consultation, but permission for operation could not be obtained until 10.30 P.M.

Operation.—Ether. Right iliac incision. Feces and cloudy serum in cavity. Perforation about six inches from the valve, in the ileum, closed with silk. Adhesions about appendix probably from old attacks of appendicitis. Patient, in collapse before operation, died on the table. Cultures from the cavity showed streptococci, staphylococci and bacilli of typhoid.

CASE III. Typhoid. Perforation. Male, twenty-four years old. Perforation in seventh week. An ambulatory case until the fourth week of the disease. Seventeen days before operation the abdomen was tense and tender; he had a hemorrhage and was very nervous. Thirteen days before operation he had three hemorrhages.

Four days later the abdomen was soft and free from tenderness. One day before perforation there was considerable abdominal discomfort after several loose stools containing blood, but he complained of no pain. During the night the house physician found a soft abdomen, but with rigidity, as had been habitual. Turpentine stupes gave relief, and he slept all night. On the morning of perforation the house physician found no rigidity, pain or distress. At 11.30 A.M. there was general abdominal pain, and the visiting physician found slight tenderness and discomfort, relieved by catheterizing the bladder. At 3 P.M. he complained of pain without change in pulse or temperature, and considerable relief was afforded by the use of the catheter, though a slight rigidity still persisted. At 4 P.M., without change in pulse or temperature, the pain persisted, though not sharp. At 5 P.M. the temperature rose three and one half degrees, to 105.4°. At 6.30 P.M. I saw him and found marked spasm, tenderness and nausea and a poor pulse of 125.

Operation.—Ether. Iliac incision. Cloudy serum and feces in cavity. Three complete perforations in the ileum, three inches, two feet and three feet from the valve respectively, closed with silk. Intervening gut and the cecum thickened and brittle. Drained. Condition no worse for operation. For two days he was restless and complained of nausea; relieved by lavage. Then he became delirious, and died on the third day, evidently from peritonitis, the pulse rising to 160 and the temperature to 106°. No autopsy.

CASE IV. Typhoid. Perforation. Male, eighteen years old. Perforation in the fourth week. Early abdominal symptoms; some nausea and vomiting; distention, but no tenderness. Two days before perforation he had a hemorrhage followed by general abdominal pain, slight distention and rigidity, but without especial tenderness. On the following day there was nausea, considerable distention with discomfort, the temperature falling from 102° to 99° in eight hours. On the day of perforation at 8 A.M. he began to vomit a good deal; at 9 A.M. there was sharp pain in the right iliac fossa, becoming general, with tenderness and increased distress. I saw him in consultation about noon and advised immediate operation.

Operation.—Ether. Rigid, cyanotic abdomen with intense tenderness; rapid, dicrotic pulse; cold extremities. Right iliac incision. Lower abdomen and pelvis filled with feces, pus and lymph. Small perforation in ileum, one foot from valve, closed with silk. Drainage. Much shock. Frequent regurgitation. Operation in head-down position. Death within six hours. Culture from cavity showed streptococci rapidly dividing. No autopsy.

CASE V. Typhoid. Perforation. Male, thirty years old. Perforation in third week. Early abdominal symptoms; severe attack of vomiting; distention and general soreness of abdomen, but no tenderness. One day before perforation there was slight pain and distention, the temperature rising from 100° to 103°. During the night the temperature dropped to 98° and the pulse remained at 80, but there was general pain and tenderness, and the abdomen became boardlike and dusky. No marked collapse. I saw him in consultation and found all the symptoms of a general peritonitis, the abdomen being generally distended, with marked spasm throughout, tympanites and tenderness.

Operation.—Ether. Right iliac incision. Cloudy fluid, pus and feces in cavity. Eighteen inches from the valve, in the ileum, a beginning perforation was closed with silk. One foot from the valve the gut was rotten and friable for about six inches and could not be sutured, and the patient's condition did not warrant an excision, so the loop was brought outside the abdomen and sutured there after the cavity had been well flushed out. A second incision was made in the median line for drainage. Patient in fairly good condition at close. After operation he improved considerably at first, and took nourishment well, but on the fourth day he began vomiting and died on the fifth day, probably from peritonitis. No autopsy. The prolapsed gut showed no sign of strangulation and discharged freely.

CASE VI. Typhoid. Perforation. Male, thirty years old. Perforation in third week. Early in the disease he had slight tenderness in the iliac regions. No further signs

developed until the morning of the day of perforation, when he complained of abdominal pain, but of no special tenderness or spasm. Nothing suggestive was found by the visiting physician. At 1.30 P.M. there was sudden abdominal pain, the temperature fell to 98° and the pulse rose to 100. Collapse and chill. Abdomen became hard and rigid, tender and painful. I saw him in consultation at 2.30 P.M., and operated at 5.30 P.M., as soon as permission could be obtained, when the temperature had risen to 105°; the abdomen distended and tympanitic, with marked spasm, and the general condition had become precarious.

Operation.—Ether. Incision along edge of rectus where spasm persisted under ether. Lymph on coils. Small perforation in ileum closed with silk. Irrigation. Drainage. Condition poor throughout. On following day his condition was excellent, the pulse and temperature having fallen practically to normal. No distress nor nausea. Early on the following morning he had a sudden collapse without nausea or distention, the pulse rose rapidly and he died during the afternoon. A partial autopsy showed a mild peritonitis in region of the wound. No hemorrhage. No fresh perforation. No leakage. Nothing intra-abdominal to account for death. Head and chest not examined.

CASE VII. Female, twenty-six years old. Perforation in seventh week. No record of abdominal symptoms in the early course of the disease. Hemorrhage six and five days before perforation. On day of perforation she complained of abdominal discomfort. At noon the abdomen was distended and markedly painful to pressure. No change in pulse. The temperature fell to normal, followed by a chill. The face became pinched and there was profuse sweating. The pulse, temperature and respiration, however, had been steadily rising for two days. I saw her in consultation and advised operation as a last resort, as her condition was very critical, there being general abdominal spasm, cyanosis and sweating. The patient was practically moribund.

Operation.—Ether. Right iliac incision. Cloudy fluid. Perforation in ileum closed with silk. Patient then vomited into the trachea, collapsed and died. Had I operated in the head-down position as I am accustomed to do in similar cases this need not have happened. Examination of the peritoneum was made, and the appearance suggested that the perforation had existed longer than five hours. No autopsy.

CASE VIII. Typhoid. Probably two perforations at different times with spontaneous recovery in one. Male, adult. First probable perforation in fourth week; second perforation in tenth week. No early abdominal signs. One day before the first perforation he had vomited, followed the next day by a sudden drop in temperature and pulse, and extensive tympanites without local or general pain. Two hours later the pulse and temperature rose, the tympanites increased and his condition became critical. Dr. Thorndike saw him in consultation and advised operation, to which the patient refused consent. On the following day, after passage of gas and feces through a rectal tube, he improved to a fairly satisfactory condition, though very ill nevertheless. Five and a half weeks later and one day before perforation he had sharp pain in the left hypochondrium, disappearing by night. On the day of perforation, at 3 P.M., he vomited and soon complained of sharp pain, referred principally to the left epigastrium, increasing with a drop in temperature to subnormal and a rise in pulse to 128. A few hours later I saw him in consultation.

Operation.—Ether. Median incision. Slight excess of cloudy fluid. Two perforations in the ileum near the valve were closed with silk, the cavity drained through the median wound and a second opening made in the right iliac region. Examination of the ileum showed a scar-like area suggesting a healed perforation. In good condition at close of operation. Two days later he was holding his own, but that night he vomited and was apparently dying, but rallied and his condition became fairly good. Five days after operation he vomited considerably, but on the next day the wicks were removed and his general condition seemed distinctly better. Eight days after operation he began to fail, with coughing and vomiting, and died the following day. No autopsy.

CASE IX. Typhoid. Perforation. Male, twenty-four years old. Perforation in fourth week. No early abdominal signs. No tenderness. One day before perforation he had a hemorrhage and chill followed by a second hemorrhage and collapse. On the day of perforation, at 9 A.M., he had severe abdominal pain and tenderness with spasm and distention. No nausea nor vomiting. Pulse better than preceding night. I saw him within a few hours and found distention, general tenderness, more marked on the right, and some general spasm.

Operation.—Ether. Incision in right iliac region. Cloudy fluid. Ileum held down by adhesions surrounding a pocket of pus, feces and dark blood. Ragged hole in ileum closed with silk. Pelvis full of pus. Irrigation. Drainage. Much shock towards close, but patient quickly rallied under stimulation. Condition fair during the night. On the following day he had two hemorrhages without chills. He then grew restless, had four hemorrhages, and died on the second day after operation. No autopsy. Cultures from the abdomen showed the typhoid bacillus and the coli communis.

CASE X. Patient of Dr. J. B. Blake. Typhoid. Perforation. Male, thirty-nine years old. History too indefinite to determine in which week the perforation took place. No early abdominal signs, no tenderness. Six days before perforation there was delirium and distention, increasing for four days but without tenderness. On the morning of the day, he had a chill followed by rise in temperature. No increase in distention but tenderness in left flank. Delirium, distention and tenderness increased during the day, and he vomited twice. The temperature rose to 104°, the pulse to 140. Dr. Blake and I saw him in consultation in the evening, but consent for operation could not be obtained for several hours.

Operation by Dr. Blake.—Cocaine. Median incision. Free gas, fibrin and pus in pelvic portion of cavity. Perforation in sigmoid sutured. Drainage. No shock. On the following day he was mentally the same, but his distention was not relieved by enemata or the rectal tube and he died in the afternoon. Culture from the cavity showed streptococci. No autopsy.

CASE XI. Dr. H. A. Lothrop's patient. Male, twenty-nine years old. Perforation in the fourth week. Ambulatory case entering the hospital for immediate operation. Fourteen hours before he had sudden, sharp, cutting abdominal pain without a chill. Vomited several times. Slight distention, tympanites and general spasm, more marked on the right.

Operation by Dr. Lothrop.—Ether. Median incision. Chicken-broth fluid in the general cavity. Two perforations in the ileum three inches from the valve closed with silk. Thorough irrigation. Wound closed. On the following day in fair condition. Abdominal cramps, not localized. Stool. Slight distention, no vomiting. He improved without nausea or vomiting, then became restless and comatose and died five days after operation, probably from the typhoid, as there were no abdominal signs pointing to infection of the peritoneum. No autopsy. Cultures from the abdomen at time of operation showed the colon bacillus.

CASE XII. Patient of Dr. E. H. Nichols. Typhoid. Perforation. Male, thirty-three years old. Perforation in second week. Early in the disease he had general abdominal pain. Two days before operation he had repeated vomiting and severe chills and entered the hospital for immediate operation.

Operation by Dr. Nichols.—Ether. Right iliac incision. Large amount of foul fluid and intestinal contents in the cavity. Adhesions about the appendix, which was removed. Perforation in the ileum, eight inches from the valve, closed with silk. Second incision in the left iliac region and cavity flushed out and drained. Patient failed during the operation and died in about six hours.

CASE XIII. Patient of Dr. P. Thorndike. Typhoid. Perforation. Recovery. Male, twenty-seven years old. Perforation in ninth week of the disease, or about the second week of a relapse. Early in the disease he had nausea and irregular chills. At noon of the day of perforation he had abdominal spasm and slight pain relieved by stupes. At 1.30 P.M., very severe chill without rise of temperature. Then pain, spasmodic and colicky in character, in lower abdomen. At 2.10 P.M. he looked

haggard, but the pulse had not increased. He was moderately tender over the lower abdomen with marked spasm in the right iliac fossa. There was no distention, but he vomited during the examination. Marked relief followed an enema. Dr. Thorndike saw him in consultation at 3.30 P.M., when the pain had nearly subsided, but there was more tenderness, especially on the right, with well-marked spasm. The general condition was good, with a pulse rising to 160.

Operation at once by Dr. Thorndike.—Ether. Incision along outer edge of rectus. Flakes of fibrin on coils. Perforation about eight inches from the valve, in the ileum, closed with silk. Large quantity of thin pus in the pelvis. Drainage. Stood operation well.

Convalescence was satisfactory, and he was discharged in six weeks. A month later he was shown at a meeting of the City Hospital Clinical Society.

CASE XIV. Patient of Dr. Post. Typhoid. Perforation. Male, forty-eight years old. Perforation in fifth week of disease. Ambulatory case entering as an emergency. Twenty-four hours before operation he had a sudden onset of pain in the abdomen, with a constant desire to defecate. Temperature subnormal and pulse 140, with general tympanites, spasm and tenderness.

Operation by Dr. Post.—Ether. Incision through outer edge of rectus. Intestinal contents flowed from the wound. Four perforations along the ascending colon closed with silk. Drainage. In the afternoon of the same day he had no pain nor discomfort and the pulse fell from 140 to 110, but delirium began during the night and he died the next day. No autopsy.

CASE XV. Patient of Dr. G. H. Monks. Male, thirty years old. Perforation in fifth week. Ambulatory case entering as an emergency. Twenty-four hours before operation he had a sudden sharp pain in the lower abdomen with vomiting. This became less severe in the course of an hour and was roughly localized in the right iliac region. The vomiting persisted and the general condition grew worse. No chills.

Operation by Dr. Monks.—Ether. Incision along edge of rectus. Two perforations in the ileum, two inches and twelve inches from the valve, were closed with silk. Second incision in the left iliac region, the pelvis being wiped out and drained. A loop of small gut was sutured to the parietes and opened, with escape of much gas and feces. Under vigorous stimulation the condition was as good as at the beginning of the operation, but he gradually failed and died eleven hours later. No autopsy.

CASE XVI. Typhoid. Perforation. No operation. Male, twenty-one years old. Perforation in third week. Ambulatory case. Early in the morning of the day of perforation he had sharp abdominal pain, persistent, with general tenderness, increasing with spasm. I saw him twenty-four hours after the first signs, when the temperature had fallen from 103° to 100°; the pulse was rising and there were signs of consolidation in the chest. I saw him again in a few hours, when he had rapidly failed, and advised against interference, the patient dying shortly afterwards of perforation and pneumonia.

CASE XVII. Typhoid. Perforation. No operation. Male, fifteen years old. Perforation in second week. There were no early abdominal symptoms, no tenderness. On the day of perforation, at 6 A.M., he had a sharp general abdominal pain without nausea. At 7 A.M. chill with rigor for two hours. At 8.45 A.M. slight general distention and slight spasm more marked in the right iliac region. Temperature subnormal. At 9 A.M. Dr. Lund and I saw him in consultation and advised operation, but consent could not be obtained and the patient died two days later of general peritonitis.

CASE XVIII. Typhoid. Operation. No perforation found. Male, nineteen years old. In the fourth week the temperature jumped many degrees, but the patient complained of no pain. In the sixth week he developed an otitis and pulmonary symptoms. A week later, after being kept awake by a cough, the abdomen became distended and tympanitic. No pain was complained of, but in the afternoon there was spasm and rigidity somewhat more localized on the right. He vomited several times during the day. I saw him in consultation in the evening, when there was a leucocytosis of 15,000, rising shortly afterwards to 22,400. He was very ill, with

marked distention, spasm, tympanites, and dullness in the flanks.

Operation.—Ether. Right iliac incision. Intestines injected but without adhesions; much distended, necessitating puncture. Cavity flushed out and drained. Patient in poor condition, was worse towards the close, but rallied well. Death on the following day. Culture from the cavity showed no bacteria. A partial examination, postmortem, through the wound, showed no active peritonitis, no pus. A few thin flakes of fibrin on some of the coils. No perforations were found, but some areas corresponding to Peyer's patches were extremely thin. Intestines greatly distended. No leakage from the punctures that had been sutured at operation.

CASE XIX. Typhoid. Operation. No perforation. Female, twenty-eight years old. Six days before operation she had an otitis. Three days before operation vomiting began and persisted. On the night before there was slight spasm and tenderness, both increasing. No change in the temperature. I saw her then in consultation and found marked tenderness, a rising pulse, cold extremities and persistent vomiting. Leucocytosis of 21,600. Diagnosis lay between acute pancreatitis and perforation.

Operation.—Chloroform. Patient very fat. Incision in right iliac region. No evidence of peritonitis. No fat necrosis. Pancreas felt swollen and indurated. Abdomen closed. Patient stood operation badly. Death within twelve hours. No autopsy. A portion of the pancreas removed through the wound proved to be normal.

CASE XX. Typhoid. No operation. Recovery. Male, thirty-two years old, with no early abdominal symptoms. The day before I saw him in consultation he had ten to twelve hemorrhages. There was slight spasm of the abdomen, delirium and increased pulse rate. When I saw him I supposed that there was a perforation and advised a leucocyte count, which was of no value either way. He improved, had no further hemorrhages and was discharged in about two months.

CASE XXI. Typhoid. No operation. Recovery. Female, fourteen years old. No early abdominal symptoms. Two days before I saw her in consultation she had a relapse with slight distention and complained of much pain. On the following day there was slight tenderness, moderate distention and tenderness, but no pain. On the morning of my visit she had had a sudden collapse following a bath. At consultation a diagnosis of perforation could not be made, especially in the presence of a chest full of râles. Recovery later.

CASE XXII. Typhoid. No operation. Recovery. Male, about twenty-one years old. Had slight epigastric pain in the early stages. Two days before consultation he developed abdominal pain, rigidity and moderate distention with general tenderness relieved by stupes. On the day of my visit, at 9 A.M., he had intense cutting pain in the left hypochondrium, with severe rigor, cyanosis, extreme rigidity and tenderness of the abdomen. The pulse became rapid and feeble. After the chill he was comfortable but had considerable tenderness. At this time I saw him and advised exploration on the basis of a probable perforation. Shortly afterwards Dr. Post and Dr. Monks saw him and advised against present interference, as there did not then seem to be sufficient evidence of a perforation. For several days he had moderate distention and pain at times, relieved by turpentine stupes and enemata. Five days later he passed a round worm, and four days later still he developed an acute otitis, the abdominal symptoms disappearing and general improvement followed.

CASE XXIII. Typhoid. Peritonitis from ruptured mesenteric gland. Operation. Death. Male, twenty-seven years old. Early in the disease he had slight tenderness in upper abdomen, but no further signs developed until the day of operation, when mild delirium began. At 7.30 A.M. the pulse rose to 120, the face looked pinched and white and he became semi-conscious. At 8.45 A.M. he collapsed, with a rapid pulse. The left side of the abdomen became more distended than the right, but no spasm nor rigidity was noted. He grew worse and I saw him in consultation a few hours later, when I obtained the following additional history: About five

hours before operation he had collapse, with increasing pulse, tender and painful abdomen and increasing delirium. I found spasm not definitely localized, though the pain had started in the left fossa. The patient was in very poor condition and operation was advised as a last resort.

Operation.—Ether. Median incision. Slight excess of fluid. No pus. No perforation. Swollen glands. Too ill for careful examination. Death in about twelve hours. Examination, postmortem, showed two swollen glands, softened and purulent, that had ruptured and caused a local peritonitis with adhesion of the adjacent gut.

CASE XXIV. Typhoid. Cholecystitis. Operation. Recovery. Female, twenty-nine years old, entered with distention, tenderness in the sides and a tumor in the right hypochondrium. Strongly alcoholic. In a few days she became delirious. The tumor persisted with tenderness, rigidity, distention and spasm.

Operation.—Ether. Incision over gall-bladder, which was opened, emptied and closed, together with the abdominal wound. No perforation was found. Discharged; relieved in a month. Cultures from the bile showed the typhoid bacillus.

CASE XXV. Typhoid. Probable cholecystitis. Operation. Death. Italian boy, seventeen years old. Entered in fourth week with rigid abdomen without spasm, but with tympanites and splenic tenderness. Two days later there was general abdominal tenderness, slight distention, involuntary micturition and general tenderness of all limbs. Pulse rising from 120 to 160.

Operation.—Ether. Median incision. Excess of light, coffee-colored serum. No perforation. No pus. Urine drawn at operation showed bile. Second opening made and the gall-bladder drained. Condition no worse at close of operation. Death twenty-four hours later. Culture from the bile showed the typhoid bacillus and from the abdomen the staphylococcus albus.

CASE XXVI. Pyonephrosis and cystitis. Italian, thirty-nine years old, entered after an illness of two weeks, delirious, with tense, retracted abdomen, marked rigidity, a leucocytosis of 33,500 and a positive Widal reaction.

Operation.—Ether. Incision in right semilunar line. Nothing found in abdomen to account for condition. Wound closed. Death on following day. Autopsy showed no evidence of typhoid. Pyonephrosis, hydro-nephrosis and cystitis.

DIET IN TYPHOID FEVER.¹

BY FREDERICK C. SHATTUCK, M.D., BOSTON,

Jackson Professor Clinical Medicine, Harvard Medical School.

IN 1897 I had the honor of communicating to the Section on Practice of Medicine of the American Medical Association a short paper² pleading for a more liberal dietary for typhoid patients. From 1886 to 1893 my hospital patients were given an exclusive milk diet until the temperature had remained at or below 99° for a week; since 1893 I have fed my typhoid patients according to their digestive power rather than according to the name of their disease, simply avoiding anything which contains, or can reasonably leave, a residue irritating or harmful to the ulcerated surface. Under the exclusive milk diet I had a mortality of 10% in 233 cases; with the enlarged diet the mortality has been 8.45% in 246 cases. If I am rightly informed, some of my colleagues at the Massachusetts General Hospital adhere to the purely liquid diet, some to a medium diet, no one going quite so far as I do in dietary freedom. Dr. Fitz's³ analysis shows that the mortality among my cases was less than among those of my colleagues who used a more

purely liquid diet, and that relapse was 2.9% less frequent in the liberally than in the rigidly fed. Fitz' paper brings the statistics up to 1899; Dr. W. H. Smith has completed them up to 1902, studying mortality, hemorrhage, perforation and relapse in 563 cases. His research shows that neither hemorrhage, perforation nor relapse are more frequent among my patients than among those more cautiously fed.

I am familiar with and lay to heart Dr. Morton Prince's important paper⁴ showing the erroneous conclusions which may be drawn from any series of typhoid cases less than one thousand in number. My personal cases are only about one-half that number, nearly equally divided between milk-fed and generously-fed patients. I feel, however, that the evidence is sufficient to warrant further trial of a liberal dietary, inasmuch as this evidence strongly indicates that under such dietary, mortality and relapse are less rather than greater, while hemorrhage and perforation are no more frequent. The testimony of nurses and house physicians corroborates my own convictions that under the liberal dietary the patients are more comfortable and have a shorter convalescence. I shall, therefore, with a mind open to conviction, persevere in feeding my typhoid patients with reference to their digestive power, avoiding substances leaving an irritating residue, and hope that others may be encouraged to do likewise. I will not encroach upon your time by giving a list of foods which I employ. To this audience the statement of a principle is sufficient.

Of the 563 cases of typhoid at the Massachusetts General Hospital from 1899 to 1902, the mortality was 8.8%; this mortality, as contrasted with 14.3% in the 3,538 cases analyzed by Dr. Fitz, at first seems striking; but Dr. Smith suggests that this decrease may be due in part at least to the fact that a large number of patients with mild typhoid have entered late in the disease. A Widal reaction on or soon after entrance has aided in proving the existence of a mild typhoid. It will be interesting to observe if the mortality in other reported series of typhoid where a routine blood examination is made does not show a diminution.

TYPHOID FEVER IN PRIVATE PRACTICE.¹

BY J. T. G. NICHOLS, M.D., CAMBRIDGE, MASS.

HYGIENIC surroundings and good nursing are the essentials of the management of typhoid fever. In a well-ordered hospital they are provided; in private practice it is the first duty of the physician to secure them. How shall this be done?

The room best adapted to this end should be chosen, without too much regard to the convenience of the rest of the household. It should have a sunny exposure, windows on two sides and an open fireplace or the best substitute, a Franklin stove. The carpet and all unnecessary furniture should be removed.

An abundant supply of fresh air must be provided. In warm weather this can be done by open windows. They should be freely thrown open day and night. We are often met by the fear of night air, but fresh

¹ Read at the Boston Medical Library, Dec. 15, 1902.

² Journ. Amer. Med. Assn., July 10, 1897.

³ Boston Med. and Surg. Journ., 1899, II, p. 509.

⁴ Boston Med. and Surg. Journ., II, p. 398.

¹ Read at the Boston Medical Library, Dec. 15, 1902.

air is just as necessary as by day — and night air is the only air we can get. We need not fear a fresh breeze. If the patient objects to it, a screen will comfort him. The more closely we approach out-of-door conditions, the better. The open fireplace secures the discharge of foul air. If too warm for a fire a kerosene lamp in the fireplace will give an efficient draught up the chimney.

In cold weather fresh air can be supplied freely and safely by the use of the window board. This should be a thin board, about eight inches wide, reaching from side to side of the window frame. It can be extemporized by nailing two clapboards together by their thin edges. It should be placed near the sash, which can be raised to any desired extent, but never above the board. A strip of rubber tubing fastened to each end gives it a firm hold on the frame, so that it can be moved as on a hinge, giving the entering air the desired direction. A like board should be attached to the top of the window. In this way a free supply of fresh air can be given, without draught or chill to the patient.

If we are compelled to use an air-tight stove, by a simple and inexpensive device warm, fresh air can be supplied. The stove may be encased in sheet iron with suitable openings, cold air being brought from the window board by a tin tube to the space between the casing and the stove, the flow being controlled by a damper.

This method of ventilation is described and illustrated in a prize essay bearing the device "X Y Z," written by Dr. Morrill Wyman of Cambridge, printed in the publications of the Massachusetts Medical Society for 1871.

The bed should be a single one, preferably of iron, with wire spring, a soft hair mattress covered with rubber cloth, and a double layer of blanket over this. Sheets should be changed and the blanket aired daily, the mattress changed and aired often. If there is room, there should be two beds, that the patient may have a daily change with the least disturbance.

If cold bathing is demanded there is no difficulty in private practice in using cold sponging, spraying or sprinkling. If a more free application of water is desired, a fairly effective tub can be made on the bed with a few sandbags and a rubber sheet.

Cleanliness and the use of means to destroy the germ of the disease should be enjoined. The physician should give explicit directions on these points and see that they are faithfully carried out.

When all these things have been done, the question of drugs is of secondary importance. Conditions may arise demanding their use, and the judgment of the physician must be his guide in each case. He should always bear in mind the warning of Hippocrates, "Do no harm."

UPON THE PRESENCE OF THE TYPHOID BACILLUS IN THE URINE AND SPUTUM.¹

BY MARK W. RICHARDSON, M.D., BOSTON.

In the *Journal of Experimental Medicine* for 1898 and 1899 I published two articles: one upon the presence of the typhoid bacillus in the urine, and

¹ Read at the Boston Medical Library, Dec. 15, 1902.

the other upon the use of urotropin as a remedy for this condition. Observations upon 103 cases of typhoid fever showed that typhoid bacilli were present in the urine of 22, or 21.35% of the cases.

A review of the literature since 1887 shows that 30 observers have made bacteriological investigation of the urine in 1,291 cases of typhoid fever. Of these, 278 gave positive results: a percentage of 21.5, which approximates remarkably closely to my own percentage of 21.35.

As to the use of urotropin² — this drug has been used by 8 observers in 53 cases. All the reports have been favorable except that of Gwynn, who found that, in two cases of cystitis due to the typhoid bacillus, the organisms persisted, though in much diminished numbers, in spite of a long-continued use of urotropin. Gwynn prefers irrigation of the bladder with corrosive sublimate 1:50,000.

Very rarely the use of urotropin has been followed by painful micturition and hematuria. These symptoms have, however, ceased immediately upon omission of the drug, and no permanent injury to the kidneys has resulted.

Our present knowledge upon this subject may be summed up as follows:

(1) Typhoid bacilli are present in the urines of about 21% of individuals afflicted with typhoid fever.

(2) The bacilli, when present, are generally in pure culture, and their number is frequently enormous, — many millions in each cubic centimeter of urine.

(3) The invasion of the urine by the bacilli takes place in the later stages of the disease. Unless measures are taken to remove the organisms they persist frequently for weeks, occasionally for months, and rarely for years, and thus constitute (a) a danger to the patient himself (cystitis and possibly orchitis and epididymitis), and (b), what is much more important, a grave source of danger to the public health.

(4) The necessity for the rigid disinfection and supervision of typhoid urines is apparent.

(5) In urotropin we have a drug which will, in the vast majority of cases, remove the typhoid organisms from the urine, not only in the cases of simple bacilluria, but also in those in which a cystitis has resulted. Very rarely an obstinate cystitis may require the use of vesical irrigations. Very infrequently a case will be seen in which the use of urotropin is followed by hematuria. In such cases the drug should be omitted and irrigation of the bladder substituted.

(6) This subject in its relation to the public health is of the utmost importance. In my opinion it should be a fixed rule, and one rigorously enforced, that no typhoid convalescent be discharged as well until his urine has been proved permanently free from bacilli. In large hospitals, with their well-equipped laboratories, such supervision can be carried out with ease. Cases in private practice should be the care of the local boards of

² Dr. F. C. Shattuck stated that for several years it has been his routine practice, alike in hospital and in private, to give his typhoid fever patients 8 to 10 grains of urotropin three times a day for two days in every week, until convalescence is completed. This obviates all danger from the urine and has never produced any untoward symptom.

health. In this way only can we prevent a considerable percentage of our typhoid convalescents from becoming unsuspected foci for the further distribution of the disease.

As to the presence of the typhoid bacillus in the sputum, I was able, in 1897 (*Journal of the Boston Society of Medical Sciences*, 1897, Nov. 16), to isolate this organism on three successive days from the sputum of a case of typhoid fever complicated with pneumonia. In 15 cases with no pulmonary complications the results were negative.

Since 1897 the subject has been investigated by a few observers only. Their results show that the typhoid bacillus may be present in the sputum during typhoid fever, especially if there be a coincident bronchitis or pneumonia. The typhoid bacilli are almost invariably associated with other organisms, such as the pneumococcus or the influenza bacillus, and are to be regarded rather as secondary invaders than as the primary cause of the complication. The sputum in these cases is generally hemorrhagic, and may contain large numbers of bacilli for considerable lengths of time. Seven weeks is the longest period of persistence recorded. The subject needs much further study, but enough is known to show that in the typhoid sputum we have still another excretion which must be carefully disinfected.

Medical Progress.

REPORT OF PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M. D., BOSTON.

[Continued from No. 5, p. 125.]

THYROID EXTRACT IN THE TREATMENT OF PUERPERAL ECLAMPSIA.

NICHOLSON⁸ remarks with truth that in the whole range of obstetrics the subject of puerperal eclampsia stands out prominently as the most urgent and important problem yet awaiting solution. Our view as to the causation of this mysterious complication of pregnancy has been obscured by the adoption of certain theories founded mainly upon the results of necropsies of women who have died of eclampsia. Pathological changes found in some cases in the kidney and liver have given rise formerly to a renal hypothesis, and more recently to an equally unsubstantiated hepatic hypothesis.

It is certain that in cases of genuine puerperal eclampsia the kidneys and liver commonly suffer no permanent damage, and all recent investigations point to the conclusion that the convulsions are due to an acute toxic poisoning. If there is still uncertainty in some minds as to whether a toxemia accompanies normal pregnancy, there is little if any doubt that some toxic condition of the blood is the immediate cause of eclampsia. When a pregnant woman threatens to become eclamptic, the clinical points of chief significance are: (1) Certain changes in the character of the pulse, in the condition of the arterial walls, and in the blood pressure; (2) marked diminution in the quantity of urine secreted in the twenty-four hours; (3) diminished quantity of urea in the urine. He regards the diminished secretion of urea as a most striking

and important matter for consideration. It strongly suggests that the metabolism of nitrogenous substances has not been properly carried out.

At the present day in the consideration of all questions of metabolism one naturally thinks of the thyroid gland, for there is now little doubt that the active thyroid supplies a secretion which is essential to the maintenance of the normal metabolic round. Therefore in the additional metabolic processes incident to pregnancy we should expect to find evidences of increased thyroid activity, and it is a well-established fact that the gland constantly undergoes enlargement at this time. It seems not improbable, then, that the occurrence of many cases of puerperal eclampsia is intimately connected with inadequacy of the maternal thyroid system, — thyroid and parathyroid glands. Cases of pregnancy associated with myxedema or with goiter have been recorded, and it is interesting to note that in some of them all the characteristic pre-eclamptic symptoms were present to a marked degree.

Stated in a general way, his conception of puerperal eclampsia is this: In some pregnant women — for reasons which are at present obscure — the supply of iodothyron in the tissues becomes gradually or suddenly insufficient for the needs of normal metabolism. Coincidentally, certain toxic substances (intermediate or imperfectly converted products of nitrogenous metabolism) find their way into the circulation. These toxics, by their special property of contracting the blood vessels, eventually lead to the arrest of the renal secretion. With the suppression of urine, convulsions occur, and these do not seem to differ essentially from the convulsions of ordinary uremia. A deficiency of iodothyron is the primary fault; then the functions of the important metabolic organs are deranged, and finally a "vicious circle" becomes established.

Supposing the above hypothesis to be well founded, two main principles of treatment seem to be clearly indicated. The first, which would be best applicable in the pre-eclamptic stages of the disease, would aim at the readjustment of the metabolic processes. This is commonly done by putting the patient temporarily on an absolute milk diet and keeping her in bed. The explanation of the beneficial results which follow upon a reduction of the nitrogenous intake is to be found in the fact that the demands of the thyroid secretion are thereby greatly lessened. Meat diet, besides using up more iodothyron, yields too little iodine for the manufacture of a fresh supply. This indication, however, may, perhaps, be more directly fulfilled by the use of thyroid extract in doses of 10 to 20 grs., daily, till symptoms of "thyroidism" appear. We may afterwards continue with a dose which will be sufficient to prevent the return of pre-eclamptic symptoms. When thyroid treatment is commenced, he thinks the amount of nitrogenous food should be considerably reduced for a few days, but later on a pretty full dietary may be allowed. He cannot insist too strongly on the necessity of using a thoroughly reliable and active preparation of the thyroid gland.

The other obvious indication in treatment, and the one which is especially necessary after the onset of convulsions, is to reestablish the secretion of urine. This leads to the consideration of a most

⁸ *Lancet*, March 22, 1902.

important question,—the cause of the renal arrest. He has already expressed the opinion that this is brought about by the actions of the toxins on the blood vessels. The toxins cause contraction of the arteries, not only of the body generally, but of the kidneys in particular, and this contraction of the renal arteries ultimately becomes so extreme that the flow of blood through the kidney is prevented. Then the secretion of urine is entirely abolished. The analogy here to the action of toxic doses of digitalis is very complete; in both cases the poisons ultimately stop their own excretion by producing intense contraction of the renal vessels, and anuria results.

Thus in this kind of suppression of urine the main object of treatment is to relax the spasm of the renal arteries. The pressure in the glomeruli will then be raised, and this will be succeeded, in a variable time, by a copious secretion of urine. Thyroid extract possesses a specific action in enlarging the caliber of the vessels, and if it be given to an eclamptic patient in doses sufficient to produce symptoms of "thyroidism" the renal secretion soon becomes reestablished. In all other successful methods of treatment in eclampsia, he believes the same principle is involved, and a condition of the circulation comparable to "thyroidism" (full dilatation of the blood vessels) is produced, which is followed by diuresis.

The value of morphine in eclampsia is undoubted, and he is satisfied that its beneficial effects are to be explained by the fact that a large hypodermic dose fully dilates the vessels. Morphine thus reestablishes diuresis instead of abolishing it or causing toxic effects. But half a grain or even a grain must be used; the smaller doses do not produce sufficient vaso-dilatation, and might give rise to alarming symptoms. In eclampsia excellent results have followed the use of large saline infusions. The rationale of their action is the same as in the thyroid or morphine treatment—relaxation of the renal vessels resulting in diuresis. After such an infusion there is a distinct enlargement of the radial caliber, and the sphygmogram clearly indicates diminished peripheral resistance.

Thyroid extract, from its specific action on the blood vessels, is a very valuable remedy in some cases of eclampsia, if only used for the purpose of reestablishing the secretion of urine. It is highly probable, however, that it has also the power of readjusting the processes of metabolism; for after its use the nitrogen excretion in the urine is increased, chiefly in the form of urea. This brings the urine of the eclamptic nearer to the normal condition again. Thyroid extract is a powerful diuretic both in health and disease; the increased quantity of urine secreted may possibly be related to the simultaneous rise in the urea excretion. Urea is a substance possessed of remarkable diuretic properties. Thyroid extract may be advantageously used (by the mouth or hypodermically) in all cases of eclampsia, but when convulsions are frequent and severe, at least one large dose of morphine should be given. Besides these measures, saline infusions may be employed with the object of accelerating the reestablishment of diuresis. In cases where the patient is dying from coma, or with a rapidly rising temperature, the additional treat-

ment by the cold or tepid bath, recommended by Herman, seems to afford the best chance of recovery. In the comatose type one would not use morphine. In conclusion, he makes the suggestion that thyroid extract should be tried in some of those rare cases of suppression of urine occurring after labor and miscarriage.

In a later communication⁹ he reports details of the administration of thyroid extract in four recent cases. The first case was a primipara, who was in the eighth month of pregnancy, suffering from severe headache, insomnia, scanty urine, and swelling of the hands, face and body. Two fits occurred and were treated with morphia. After the stupor passed off, ten grains of thyroid extract were given, and five grains repeated every four hours. The urine was solid on boiling. Premature labor set in, and a still-born child was born forty hours afterward. The patient recovered rapidly.

The second patient had suffered from eclampsia in three previous pregnancies. The last had been treated with thyroid extract, and she had been told to place herself under treatment early in any subsequent pregnancy. In her fourth pregnancy she began taking thyroid extract on her own initiative at the third month. She had felt altogether different in this pregnancy, had had no sickness, no swelling of the face or body, and no giddiness, blindness or headache. The urine was normal. He said that he believed that thyroid extract acted as a specific in favoring metabolism.

THE FETAL THEORY AS THE CAUSE OF ECLAMPSIA.

Moulton¹⁰ declares that the fetal theory of the pathogenesis of eclampsia is a product of our own time, and that two investigators have, independently, reached virtually the same conclusion. It has been learned from autopsies that there are changes in the organs of both mother and child which can only be explained through the presence of an abnormal amount of toxins in the blood. The secretory organs of the mother undergo anatomic and functional changes during pregnancy which interfere with their powers of assimilation and secretion. If in this impaired state they can do the increased work required by the pregnant condition, the woman continues healthy. If not, a surplus of toxins remains in the system, vitiates the circulation, and may produce eclampsia. One support of this theory is the frequent occurrence of eclampsia in twin pregnancy, which gives rise to a greater amount of toxins than ordinary pregnancy; another is the diminution of the symptoms of threatened eclampsia when the fetus dies in utero, that is, when the increased production of toxins ceases. The appearance of post-partum eclampsia is thought by some to refute the fetal theory, but it does not, since although after delivery the increased production of toxins ceases, the changes in the maternal organs causing the toxemia still remain.

PUERPERAL APHASIA.

Sinclair¹¹ remarks that "puerperal aphasia" is a term which has not yet, so far as he knows, found

⁹ Brit. Med. Journ., 1902, vol. II, p. 1138.

¹⁰ Am. Med., Feb., 1903, p. 910; Cent. f. Gyn., Oct. 18, 1902.

¹¹ Lancet, 1902, vol. II, p. 304.

its way into medical nomenclature, although one paper by Poupon on the subject has given it a distinctive significance. Sinclair includes under the term not only cases of loss of speech occurring during the strictly puerperal period, but also cases occurring during the later months of pregnancy. He follows this arrangement because he says underlying it there is a pathological factor which he believes must be taken into account in all cases of aphasia occurring at this time. This factor is the altered condition of the maternal blood for a certain period before and after delivery, and the greater tendency of the blood at this time to undergo clotting within the vessels. The last is especially emphasized at this point since it has not been noticed before in the discussion of the etiology of the disease and the occurrence of cerebral thrombosis as a factor in the causation of puerperal aphasia.

Sinclair reports one case occurring in his own practice, and has collected seventeen others from medical literature. He says it is possible that he has overlooked some of the literature of the subject, but that his search has convinced him of the rarity of the disease.

The cases are considered under two broad classes: (1) Those due to nervous origin, and (2) those due to vascular origin. He admits the occurrence of cases due to a nervous dyscrasia, such as hysteria or reflex disturbance, and it must be borne in mind that during pregnancy the whole mental attitude of a woman often undergoes a profound change, and in many cases she may become fretful, capricious and have little control of the emotional faculties.

The occurrence of a puerperal aphasia of neurotic origin, therefore, would not be surprising when we remember that a similar loss of speech may occur apart from pregnancy. Sinclair says that an occasional case of aphasia may follow delivery where pyogenic infection has unfortunately taken place. Under the vascular group there may occur certain transitory cases which possibly owe their origin to cerebral "congestive attacks," but the severe cases of loss of speech are due to cerebral thrombosis, embolism or hemorrhage. The possibility of cerebral hemorrhage may be considered rather remote except in the presence of albuminuric complications, as the child-bearing woman is apt to be at an age when the blood vessels are usually intact. It is also clear that in a case of a woman with cardiac disease, an embolus might become detached. With regard to the larger number of cases of puerperal aphasia in which the blood vessels show no signs of degeneration, there is no cardiac disease, no albuminuria, and no neurotic condition. He believes the key of the situation lies in the composition of the blood itself, and the greater tendency which puerperal women have to the formation of clots within the vessels. All the cases of aphasia, with one exception, developed during the four later months of pregnancy, or during the period immediately following delivery, which period exactly corresponds with that in which numerous analyses of the blood have shown it to be most profoundly altered, characterized by a remarkable diminution in the number of red corpuscles and a considerable increase in fibrin. He says there is a further argument in favor of cerebral thrombosis as against

embolism — the occurrence of the aphasia in subsequent pregnancy, as it is contrary to all laws of chance that an embolism should be carried to the same spot on the same side of the brain in succeeding pregnancies.

He adds that the nature of the labor has no necessary relation to the loss of speech, as in many cases the labor has been distinctly stated to have been natural and easy, although it is evident that in pyogenic cases, and in those accompanied by severe hemorrhage, with subsequent anemia, the nature of the labor may contribute indirectly to the occurrence of the aphasia.

In considering the prognosis of puerperal aphasia one has to consider several facts — the nature of the lesion, whether functional or organic, nervous or vascular. But looking in a general way at the cases summarized, one cannot help being struck with the large proportion of recoveries from a primary attack of puerperal aphasia. In some the loss of speech was of a very transitory type, in others complete or partial recovery ensued in the course of a few days, weeks or months. A primary attack of puerperal aphasia, therefore, will often lend itself to a more or less favorable outlook. At the same time the liability to recurrence, in a subsequent pregnancy, is emphasized, and the second attack is often of a more serious nature and the prognosis grave — indeed, so bad that the question must be considered whether it ought to be allowed to occur. In fact, he goes so far as to say that in event of a patient again becoming pregnant, the only justifiable course, according to present knowledge, is to terminate pregnancy at the earliest possible moment. This was actually carried out in his own case.

THE TRANSPORTATION OF CHORIONIC VILLI.

Poten¹² says the discovery of chorionic elements in secondary malignant growths raises the question whether in ordinary pregnancy fetal structures do not enter the maternal circulation. A number of observers have previously noted the occurrence of syncytial elements within maternal blood vessels, and a few have also described complete villi as having been seen in maternal veins. After recapitulating the previous work, the writer describes in detail seven pregnant uteri which he has examined microscopically. Two of these were removed during the early months, the remainder towards the end of pregnancy; all were prepared with the placenta *in situ*. The writer found that broken villi, or portions of them, had in each case entered the maternal vessels. The early specimens showed the migration of syncytial buds, such as are seen upon young villi, and also of whole villi. In the older specimens, adult villi were found in the veins of the uterine walls. The writer remarks that the villous structures found in the prepared uteri could only be those which were lying in the uterine veins just at the time of death, all others having been previously swept away into the maternal circulation. They are not emboli, inasmuch as they do not block the veins, but are carried on from the smaller to the larger until, after passing through the heart, they are arrested in the capillaries of the lungs. They appear to have no coagulating action upon the ma-

¹² Journ. of Obstet. and Gyn. of the Brit. Emp., Sept., 1902, p. 302; Arch. f. Gyn., vol. lxxvi, no. 3.

ternal blood, nor do they have any injurious effect upon the walls of the vessels. No special examination has been made of the lungs of healthy females dying during pregnancy, or, the writer thinks, the presence of fragments of villi would have been demonstrated in their capillaries. In the uterine wall the fragments found are fresh and well preserved, but these are portions only just broken off from the living placenta. Those which have passed on with the maternal blood stream probably break up after necrotic changes have occurred in them, and gradually disappear without leaving any trace in the blood.

The etiological factors which induce these conditions remain as yet a matter of doubt. The villi in certain cases may be more brittle, or the placental attachment insecure, but the author inclines to the theory that changes in the blood pressure constitute the principal cause.

The author believes that their entrance into the maternal circulation is a regular occurrence, and is without special pathological importance, except that under certain circumstances he believes that syphilitic infection of either mother or child may be induced in this way. The villi have been observed to contain fetal blood, which would naturally be set free in the maternal circulation. If the fetus is syphilitic, the virus could thus be readily transmitted. In the same way the blood of the mother who has become syphilitic during pregnancy could infect the fetus by contact at the points where the villi have been torn away.

BACTERIA AND THE VAGINAL SECRETION IN PREGNANCY.

The bacteriology of the vagina under normal conditions in pregnancy is of importance and has not yet been fully determined to the complete satisfaction of all observers. Bergholm¹³ has made examinations in forty cases in the latter part of pregnancy, none of whom had been examined or douched. He attempted to determine if the streptococcus, the staphylococcus and the colon bacillus are found in the vagina, and what bacteria are commonly found in the vaginal secretions. He finds the reaction of the vaginal secretion of pregnant women to be acid in general, the degree of acidity varying considerably. The cellular elements present are squamous epithelial cells, leucocytes and micro-organisms. Although in certain cases the color, consistence and reaction of the secretion indicate whether epithelial cells or leucocytes predominate, these physical characters give no information as to the micro-organisms present, and therefore do not enable the observer to characterize any specimen as normal or pathological. The organisms found were, as a rule, those which vary little, and the majority preferred anaërobic conditions. Most of the organisms found were bacilli, cocci being comparatively few. Those generally found were not pathogenic for animals; staphylococcus pyogenes albus and aureus, streptococcus pyogenes, and bacterium coli do not occur in vaginal secretions. These and other aërobic forms abound, however, in the alkaline vulvar secretion.

¹³ Archiv f. Gynak., vol. lxxvi, book 3.

FETAL MORTALITY IN INDUCED LABOR.

Gilman¹⁴ reports nine cases of induced premature labor in contracted pelves with a fetal mortality of 55%. One case he reports in full, in which he himself advised Cesarean section, which was refused by the parents. What he states is undoubtedly true, that for many years the only treatment of the cases of marked pelvic deformity which offered any hope for the child was the induction of premature labor, and that many children were saved in this way, and as the procedure was much more successful than any operation at full term it acquired a well-merited reputation.

Gilman believes that the true fetal mortality in induced labor cannot be under 40% at least. He reports these cases to show the high fetal mortality in induced labor, with the hope that the results of more cases of induction of labor may be reported, as he is evidently a firm believer in Cesarean section at full term for contracted pelves.

Reports of Societies.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE TWELFTH ANNUAL MEETING HELD AT ST. JOSEPH, MO., DEC. 29 AND 30, 1902.

[Continued from No. 5, p. 137.]

LUNG SURGERY (Continued)

(24) Hemoptysis may be absent in the most severe lacerations of the lung.

(25) If bleeding from larger pulmonary vessels results, forceps should be applied; if not, gauze should be securely packed in the cavity.

(26) Drainage of pulmonary cysts of any character can be effected with the same success as in any other organ.

(27) Incision for drainage should be done with or without the presence of adhesions. If without adhesions, the opening in the chest should be at the lowest point of the pleural cavity for drainage by gravity.

(28) Many incisions of the lung may and should be made with and without even local anesthesia.

(29) It is probably but a few that will necessitate the use of general anesthesia.

(30) Abscess of any character and of any location in the lung should be found and opened.

(31) Gangrene of the lung demands most radical surgical measures, such as opening the chest, drainage and the removal of all necrotic tissue.

(32) Polypi of bronchia seldom necessitate removal, but they may cause conditions which may require surgical intervention.

Pneumonorrhaphy. — (1) Silk, silkworm gut and animal tendons are the most desirable materials for lung surgery.

(2) Absorbable sutures and ligatures, as a rule, are not to be relied upon as to strength and durability.

(3) Silk and silkworm gut may become encysted in the lung and remain harmless.

¹⁴ Am. Journ. of Obstet., Sept. 17, 1902, p. 351.

(4) The tug and a combination of the tug and tobacco pouch sutures constitute the most desirable ones for use in the lung.

(5) Ligatures and sutures may be dislodged by sudden expansion of the lung due to sudden closure of the opening in the chest wall.

(6) The blood vessels, bronchia and lung tissue should be ligated separately, great care being used not to include too much tissue of any kind in one ligature.

(7) Needles to be employed in lung tissue should be round, with a rounded point. They should never have a sharp point or sharp edges.

(8) Not all ruptures, punctures or lacerations of the lung require sutures, or any surgical intervention whatever.

(9) Many lacerations of the lung without fracture of the bony chest can and should be treated by suture, compression with gauze or forceps.

(10) Puncture of the lung from any cause, such as stab and gunshot, resulting in hemorrhage, should be treated by opening the chest and applying ligature or compression.

(11) Rupture of the lung should be treated as a laceration.

Pneumectomy. — (1) A portion or all of one lobe, or the entire right or left lung, may be removed without causing death.

(2) For complete or partial lacerated portions of the lung, when severe, pneumectomy is necessary, and should be done.

(3) Gangrene of the lung requires in many cases the removal of all necrotic tissue.

(4) Hernia of the lung, when sudden and of but few hours' duration, should, as a rule, be amputated, and the stump fixed in the chest wall, as there is no sac.

(5) Hernia of the lung coming on gradually has a sac, and should be returned to the pleural cavity, if possible, without amputation.

Pneumopexy. — (1) This is the safest and most rapid way of dealing with the stump of lung tissue in the majority of cases necessitating excision for any cause.

(2) Adhesions of the parietal and visceral pleura have, without exception, taken place, whether there have been lacerated or incised wounds, with or without suture.

(3) The degree of adhesion corresponds with the degree of injury.

(4) Cysts of the lung of any character can best be drained through viscero-parietal adhesions. In the absence of adhesions the wall of the cyst may be sutured to the edges of the opening in the chest wall, drainage to be at once accomplished, or at some subsequent time.

SECOND DAY. — MORNING SESSION.

THE PATHOLOGY THAT REMAINS AFTER THE NON-SURGICAL TREATMENT OF PERITONITIS.

DR. H. D. NILES, of Salt Lake City, Utah, read a paper with this title. The author states that 95% of all the survivors of the non-surgical treatment of peritonitis are left with infection without the peritoneal cavity and adhesions within the peritoneal cavity. Well-known anatomical peculiarities of the gall bladder, appendix and Fallopian tubes

favor the reception and imprisonment of infection from the alimentary canal and endometrium and its extension to the peritoneum. It is about one of these organs that the surgeon usually finds the pathology, unless it has been mechanically removed. The greatest amount of infection comes from a sudden rupture of an appendiceal or tubal abscess, or a perforation of the stomach, an intestine, or the gall bladder. The most virulent infection is either appendiceal or from a pyosalpinx, following a puerperal endometritis; the mildest is from a cholangitis, or a gonorrheal salpingitis.

The author's experience leads him to believe that about 40% of the possessors of infection and adhesions suffer from recurrent attacks of acute and subacute peritonitis, and less than one per cent from mechanical obstruction of the bowels. It is to the remaining 59% that he invited particular attention, for while it has been customary to point to these cases as sufficient proof of the efficiency of the drug treatment of peritonitis, he believes that all fair-minded, thoughtful observers are learning to regard the pathology these patients carry within their abdomens as responsible for much distress and many deaths that were formerly attributed to other causes, or physicians were unable to trace to any well-defined cause.

DR. D. S. FAIRCHILD, of Clinton, Iowa, followed with a paper on

SURGICAL TREATMENT OF TUBERCULAR PERITONITIS.

The conclusions reached by the author are:

(1) If an intra-abdominal focus of tuberculosis is diagnosed or is suspected, an abdominal section should be made with the view of a more efficient treatment.

(2) If a chronic tuberculosis of the peritoneum with ascites is diagnosed, or believed to exist, a laparotomy is indicated as soon as it is found that medical and hygienic treatment has failed.

(3) In fibrous tuberculosis of the peritoneum the same course should be pursued, and if cheesy degeneration has not commenced, or progressed too far, a certain percentage of recoveries will follow.

(4) In acute tuberculous peritonitis, with ascites and high temperature, laparotomy is useless.

(5) In extensive adhesive tuberculosis, with matting of the intestines, laparotomy is useless, and the attempt to separate the adhesions is dangerous in its immediate results.

INJURY TO NERVES FOLLOWING FRACTURES.

DR. A. L. WRIGHT, of Carroll, Iowa, read a paper on this subject, in which he reported a fracture of the humerus through the middle third, with injury to the musculo-spiral nerve, or, rather, the incorporation of this nerve between the ends of the bone, or to its being caught and pressed upon by the callus thrown out during the reparative process.

He said that the literature is replete with cases reported where various nerves, especially the ulnar and median nerves, have been severed by a stab or the falling of glass. The case he presented had the typical clinical picture of injury to a nerve found at the end of a siege with a fractured bone, and taught a very valuable lesson regarding the prognosis and treatment.

DR. JOHN P. LORD of Omaha, Neb., read a paper on

TREATMENT OF NEVI.

He discussed the varieties of nevus, their etiology and pathology, and reported several interesting cases.

He said the hot water treatment of cavernous angiomas, as suggested by Wyeth, is under trial, and will doubtless have a place in the treatment of selected cases. The treatment of port wine marks by electrolysis is too tedious and painful for large areas. The results are not perfect, in that they are seldom complete, and leave some scarring. The x-ray promises better, and hot air would seem to have possibilities. Electrolysis occupies first place in hairy nevi, and will probably continue to do so unless the x-ray will produce permanent atrophy of the hair follicles. The operation of excision of very large tumors will probably never be supplanted by anything less radical; and hitherto inoperable tumors are rapidly yielding to the control of the operators of the new century.

DR. M. L. HARRIS of Chicago read a paper entitled

HYPERNEPHROMA.

It is only during the last few years that knowledge of tumors of the suprarenal capsule has made any material progress. Previous to this period tumors were variously described as adenomata, sarcomata, carcinomata, mixed sarcoma and carcinoma, endotheliomata, etc. The essayist referred to the literature of this subject, and after reporting a very interesting and instructive case presented the following conclusions:

(1) The hypernephromata are tumors of adrenal tissue, and therefore probably neither sarcomatous nor carcinomatous.

(2) Such tumors may or may not form metastases. When they do, they are distinctly malignant.

(3) When they are within the kidney capsule, or have perforated it by extension, the kidney should be removed.

(4) When they originate in the adrenal proper, they are usually separated from the kidney tissue by a connective tissue capsule, and however much the kidney may be flattened, or fixed, to the tumor, a line of cleavage may usually be found which will allow of the kidney being separated from the tumor and saved to the patient.

In the discussion DR. C. W. OVIATT of Oshkosh, Wis., reported a case of hypernephroma of the kidney which came under his observation about four years ago, but at that time a diagnosis was made of sarcoma of the kidney.

DR. VAN BUREN KNOTT described a case of hypernephroma in a young woman thirty-eight years of age. This case came under his observation about eighteen months ago, a diagnosis having been made by mistake of semi-solid tumor of the ovary.

DR. A. C. BERNAYS of St. Louis, Mo., has had six cases of hypernephroma, which he described.

SECOND DAY — AFTERNOON SESSION.

DR. J. E. SUMMERS, JR., of Omaha, Neb., reported

TWO CASES OF ACUTE INTESTINAL OBSTRUCTION FOLLOWING CONTUSION OF THE ABDOMINAL WALLS.

In the first case there was traumatic paresis of the lower part of the small intestine following kicks upon the abdomen. The patient was a young man twenty-six years of age, and of good physical development.

The second case was one of retroperitoneal hemorrhage following a contusion of the abdomen, resulting in a hematoma which compressed the descending and transverse portions of the duodenum from behind, so as to cause intestinal obstruction. The patient was a rugged young man, twenty years of age, and a farmer by occupation.

DR. HENRY T. BYFORD of Chicago described

A NEW METHOD OF SHORTENING THE ROUND LIGAMENTS INTRAPERITONEALLY FOR RETROVERSION OF THE UTERUS.

It consists in folding the ligaments anteriorly, according to Dudley, but in stitching the loop to the abdominal parietes, about opposite or behind and a trifle above the internal inguinal ring. The ligament is grasped with hemostatic forceps, and pulled out of the abdominal incision until it is drawn as far out of the inguinal ring as possible, without doing violence to the tissues. Then a medium-sized catgut suture is passed through the center of the ligament about a quarter of an inch from the uterine end, and the same suture is passed through the ligament about half an inch from the internal inguinal ring. The suture is then drawn tight and tied like an ordinary ligature, except that it includes only half of the ligament in its grasp. The inner edges of the loop thus formed should now be touched with a chemical irritant, such as Monsell's solution or 1-5000 mercuric bichloride, in order to destroy the endothelium and secure firm adhesions. The irritant is then wiped off and the edges sewn together by fine catgut, which entirely closes in and covers up the irritated peritoneal surfaces. The end of this fold is then touched with the chemical irritant, and stitched forward beside the bladder, about opposite and a little above the level of the external inguinal ring. This, of course, will be only a peritoneal attachment, and should be rather high, because the peritoneum is held in place here rather loosely. Thus there are practically two round ligaments on either side, one going from the uterus partly through the first catgut ligature to the attachment behind the external inguinal ring, and the other from the uterus to the ligature and from there to the internal inguinal ring, etc. The uterine half or quarter inch, or inch, according to the place where the ligament is transfixed, is common to both of the newly formed, round ligaments.

Where there is a tendency to uterine prolapse, he sutures the whole side of the fold of the ligament to the peritoneum beside the bladder, or even sutures the portions of the round ligaments external to the folds to the parietal peritoneum in front.

When there is decided prolapse he also stitches the infundibulo-pelvic ligament forward, the fundus uteri itself, and even takes folds in the sacro-uterine ligaments. When there is cystocele he separates the remains of the urachus with a narrow strip of peritoneum, and after loosely twisting the flap thus

obtained, and drawing up the bladder, attaches the flap into the abdominal wound. A complete description of this method was given in his paper on "Pro-lapse and Procidencia of the Uterus," read before the Third Pan-American Medical Congress, in Havana, in February, 1901.

DERMOID CYSTS OF THE INTESTINAL TRACT.

DR. WILLIAM JEPSON, of Sioux City, Iowa, presented a paper on this subject, and reported an interesting case. The cyst occupied the anterior internal wall of the colon about three quarters of an inch above the ileo-cecal valve. It was covered by peritoneum, through which the cyst wall was plainly manifest. It was removed by making an elliptical incision through the serosa, and dissecting out the growth. Recovery was uneventful.

In explanation of the development of congenital cysts in the intestinal tract, the following theories have been advanced: (1) Imperfect obliteration of the omphalo-mesenteric duct; (2) torsion of a portion of the intestinal wall by the products of a previous peritonitis, etc.; (3) by sequestration or implantation of epiblastic or hypoblastic structure, leading to the later development of an ento- or ectodermoid.

The points of interest which these cysts have for surgeons are: (1) That in a large per cent of the cases the cysts, although innocent in themselves, ultimately lead to a fatal issue, either through obstruction of the intestinal lumen, or because of their contents becoming infected from the intestinal canal, terminating in peritonitis. (2) If their removal is undertaken before such complications have resulted, a favorable termination may be looked for.

DR. A. C. BERNAYS of St. Louis, Mo., read a paper entitled

APPENDICITIS—OPERATION AND INDICATIONS.

The author laid stress on the fact that we can know nothing definite about the pathological process which would warrant delay in operating. We cannot know enough before opening the abdomen to warrant us in following an expectant plan. He believes many lives are lost because the physician is lulled into hopeful security by an amelioration of symptoms. The amelioration cannot be depended upon to last, it may change without a moment's notice into a sad picture of collapse and sepsis, and the favorable time for operation be missed.

In so-called intermediate cases a waiting policy is justified, because the system is immunizing and fortifying itself against the toxins. An operation after the body has been immunized, which means that the pus has been made less virulent, is less dangerous. Dr. Bernays thinks that an operation is likely to be less dangerous on the seventh or eighth day than on the third or fourth, but pleads strenuously for operation on the first or second day of the attack, and claims that 98% of all cases operated on at that early period will be saved. Operations done the first day or second day of the attack are as safe as interval operations. The most brilliant and satisfactory results are the prompt operations in cases of severe appendiceal peritonitis.

DR. C. G. GEIGER of St. Joseph, Mo., followed with a paper on

HYPERPLASIA OF THE UTERUS.

The author stated that the frequent occurrence of enlargement of the uterus has been a great stimulant to the study of its underlying pathological conditions. The most frequent causes of hyperemia are puerperal subinvolution of the uterus, which may be caused by too early getting up after child-birth, small or large lacerations of the cervix, and uterine trouble. Anything which interferes with normal involution predisposes to this condition. He mentioned three distinct stages of hyperplasia, namely, hyperemia, hypertrophy and sclerosis.

It is impossible to determine at the bedside exactly when the state of subinvolution commences to merge into that of hyperplasia, as it is a slow and insidious development. The two affections in clinical appearance resemble each other, and apart from the history, differentiation is difficult. Chronic hyperemia and hyperplasia may involve any portion of the uterus, neck or body, or certain portions thereof. For manifest reasons the neck of the uterus is the favorite focus of disease.

The treatment of the various conditions of enlargement is so dependent on their causation that each individual case demands a separate investigation. The ideal way of approaching this subject lies in the direction of prevention, which in a great many cases the attending physician is able to do. But gynecologists must meet the disease already developed and devise methods which, if not curative, are palliative. Iodine and caustics in the hands of the essayist have not been of much service. He believes that caustics do more harm than good. In neurotic patients nothing is better than a change of climate and scenery. In some cases a change in the surroundings accomplishes much good. To sum up the treatment briefly, the patient should be given rest, the cause removed, the diseased organ depleted, and, if possible, the patient's general health improved.

DR. J. N. WARREN of Sioux City, Iowa, contributed a paper entitled

SOME QUESTIONS IN ABDOMINAL SURGERY.

The following officers were elected for the ensuing year: president, Dr. Alexander Hugh Ferguson, Chicago, Ill.; first vice-president, Dr. C. H. Wallace, St. Joseph, Mo.; second vice-president, Dr. C. W. Oviatt, Oskosh, Wis.; secretary and treasurer, Dr. George H. Simmons, Chicago, Ill. Members of the Executive Council: Dr. James E. Moore, Minneapolis, Minn., chairman; Dr. A. F. Jonas, Omaha, Neb.; Dr. O. B. Campbell, St. Joseph, Mo.; Dr. C. H. Mayo, Rochester, Minn.; and Dr. J. R. Hollowbush, Rock Island, Ill.

Denver, Colo., was selected as the place for holding the next annual meeting; time, Dec. 28 and 29, 1903.

CRETINISM IN FRANCE.—The number of cretins and idiots in France is estimated at 125,000; in the eastern provinces the number reaches 32 in 1,000.—*Medical News*.

Recent Literature.

Saunders' Medical Hand Atlases. Atlas and Epitome of Human Histology and Microscopic Anatomy. By PRIVATDOCENT DR. J. SOBOTTA of Würzburg. Edited, with additions, by G. CARL HUBER, M.D., Junior Professor of Anatomy and Histology and Director of the Histological Laboratory, University of Michigan, Ann Arbor. With 214 colored figures on 80 plates, 68 text illustrations and 248 pages of text. Philadelphia and London: W. B. Saunders & Co. 1903.

This handy and compact volume is essentially a collection of colored histological drawings made under low magnification. In color and proportion they are characterized by gratifying accuracy and lithographic beauty. A few similar plates form an appendix to the last American edition of Stöhr's Histology, and several more elaborate ones are scattered through the recent book by Szymonowicz and MacCallum. The popularity of such figures is apparent. From the scientific standpoint, however, the utility of these colored plates is questionable. For the student with microscope and actual sections at hand, figures in black and white are quite sufficient. Even these are found in excess in many of the current books. More essential in the histological textbook is the descriptive part; and this in Dr. Sobotta's work has been made subordinate. The descriptions, though brief, are generally well expressed and clear, creditably translated and improved by Prof. Huber's revision. Occasionally, as in the account of cell division, excessive brevity has produced obscurity. The ideas advanced are, with rare exceptions, those most generally accepted. The term "endothelium" is applied only to the tissue lining the blood and lymph vessels, the anterior chamber of the eye and the synovial cavities. This tissue is sharply separated from the mesothelial *epithelium* lining the body cavities, and is classed with the connecting and supporting tissues. The mesenchymal origin of the vascular endothelium has been recently confirmed by Dr. Sobotta as a result of his own work on trout embryos. Further embryological study is needed in order to end the confusion between endo-, meso- and epithelium. In Dr. Sobotta's book many debatable and yet most interesting features of histology have been neglected in order to include the entire subject in a small volume, and the usual chapter on technique has been omitted. Even with all these omissions the publishers have produced a rather thick octavo, 7½ by 5 inches. It is printed in clear type and handsomely bound. The large pictorial portion of the book is its best part, and may be highly recommended to those who are without access to histological collections. Its place is in the library and not the laboratory.

A Manual of Instruction in the Principles of Prompt Aid to the Injured. By ALVAH H. DOTY, Health Officer of the Port of New York, Late Major and Surgeon Ninth Regiment, N.G.S.N.Y., etc. Fourth edition, revised and enlarged. New York: D. Appleton & Co. 1902.

The first edition of this work was published in 1889. The fact that it now reappears for the

fourth time would seem to indicate a desire by the medical reading public to possess it. In size and general appearance this last edition resembles closely the first. From 224 pages it has increased to 302. The object of the book is still "to instruct those who are desirous of knowing what course to pursue in emergencies, in order that sick or injured may be temporarily relieved." Special effort has been made to so arrange the subject matter and introduce such points as will be of service to the ambulance corps connected with the different military organizations. For this purpose the Manual of Transportation of the United States Army has been introduced.

The writer also considers necessary a certain amount of knowledge of human anatomy and physiology, and has devoted about one fifth of the entire book to this subject. He also, apparently, still considers it important that one called upon to aid the injured promptly should know that there are three kinds of "sweet breads," and that the function of the spleen is not definitely determined. The chapter on Bandaging deals mainly with the "major" triangle and cravat system. The chapter on Disinfection gives to sulphur a greater disinfectant value than is usually accredited to it at the present time. The recommendation to use solutions of corrosive sublimate to disinfect dejecta also attracts attention. The increased number of pages in this edition seems to be mainly due to the introduction of the chapter on Hygiene and the article on Transportation of the Wounded. The book is well classified, and contains the data and information usually found in manuals of this class. The illustrations are, as a rule, excellent.

Contributions to Practical Medicine. By SIR JAMES SAWYER, Knt., M.D. (Lon.), F.R.C.P. (Lon.), F.R.S. (Edin.), F.S.A., Senior Consulting Physician to the Queen's Hospital, formerly a Professor of Medicine, Professor of Materia Medica and Therapeutics and Professor of Pathology in the Queen's College, Physician to the Birmingham and Midland Hospital for Sick Children, President of the Midland Medical Society, Vice-President of the New Sydenham Society, and President of the Clinical Board of the General and Queen's Hospitals, etc. Third edition. Birmingham: Cornish Brothers. 1902.

Among the many textbooks and manuals published in the present day, it is rather pleasant to meet with one of the character of this small volume by Sir James Sawyer. On a number of important conditions, occurring frequently in general practice, it gives, readably and in small space, some of the results of the observation and experience of a general practitioner, seemingly of rather the old school. Written somewhat after the manner of James Jackson's Letters to a Young Physician, each chapter considers some point of value in diagnosis or therapeutics. Without the scientific atmosphere which characterizes most medical books to-day, this little volume has a value, especially for the young practitioner, in its tone, its conservatism and its suggestions arising from many years' experience.

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Medical and Surgical Journal

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THE VALUE OF SIMPLE CLINICAL TESTS.

WITH the advances which modern science has wrought in medical diagnosis, the burden which rests on the shoulders of the practitioner today has both grown in weight and changed in character. Apart from any aptitude for dealing with the sick which may lead the young man to choose medicine as his profession, he needs nowadays that quality of mind which enables him instinctively to appreciate scientific methods and investigations, and to grasp in a scientific attitude the situations he meets. The scientific procedures which make so exact our recognition of pathological conditions grow so rapidly that an increasing number of them can only be put into practice by an expert whose life is spent in the laboratory. Certain of them, however, of a sufficiently simple nature, and indispensable from the frequent occurrence of the diseases to which they refer, must be used by the practitioner himself, either at the bedside or in the office. The existence of certain diseases which formerly required time or some therapeutic test to diagnosticate, such as malaria, phthisis, influenza of the respiratory tract, typhoid and others, may now be definitely and usually speedily settled by some comparatively simple bacteriological test. Among the more specialized practitioners of the larger cities, work of this sort can be assigned to the young assistant, but among country doctors, whose individual importance in the community is greater than that of the doctor in the large city, where skilled advice is always quickly attainable by the sick, these means of diagnosis must usually be used by the practitioner in person.

Every procedure, therefore, which tends to simplify or shorten the technique of a clinical test, and to bring it within the field of the average practi-

tioner, is of very considerable importance. The goal of scientific medicine is essentially a very practical one, and workers in the fields which lie on the border between abstract scientific problems and clinical medicine should not lose sight of the importance of simplifying tests and bringing them as far as possible within the scope of the ordinary practitioner.

In this connection an interest lies in such suggestions as that given in the *Lancet* of Jan. 10 for examining blood for malaria. By using a very large drop of blood on the cover glass instead of the usual thin smear, and then staining it, without fixation, with eosin and methylene blue, the writer finds that the hemoglobin is wholly washed away; the field which remains consists only of the leucocytes, blood-plates and the colorless transparent rings of the red cells, in which the plasmodia are imbedded and stained after the usual manner of coloring by eosin and methylene blue. A slightly longer time is required in staining in this way, but it is more than compensated for by the vastly greater speed and certainty of finding the organisms when present. By using 20 cc. of blood instead of the usual smear, the chances of finding the plasmodia are increased about twenty times, and the time required in the search is twenty times less. If the organisms are present at all in the peripheral circulation they are found definitely and almost instantly by this procedure, and a waste of time in prolonged and uncertain search is avoided. Under many conditions, especially when it is impossible or inconvenient to examine a fresh specimen of blood, or when the organisms are not seen at once in such a preparation, this procedure has a definite practical value.

PRACTICE IN SMALLER PLACES.

A CORRESPONDENT whose communication will be found in another column of this number of the JOURNAL takes issue with our recently expressed views on the "Advantages of Medical Practice in Smaller Cities and Towns." From his point of view, and he apparently speaks from experience, the smaller cities and towns are veritable graveyards of ambition, in which attainment inevitably sinks to mediocrity, and a man's reputation becomes proportionate to the size of the place in which he happens to practice. "Small man, small place." This is certainly not an encouraging prospect for our young medical men who are looking beyond the confines of the large cities to possible places of professional usefulness and prominence in smaller places. Our correspondent writes feelingly, and his arguments have weight, but he must admit that

if the "air is thin" and the "atmosphere" insufficient to support specialists in the smaller cities, it is at least not vitiated by overbreathing. What is lost in stimulus is gained in lessening of competition. There are times when the struggling city practitioner longs for the pure if rarified air of the smaller place — of this there can be no doubt.

We had no intention, however, of maintaining that the conditions as they now are in smaller places are desirable or encouraging to young practitioners. We were speaking rather of the immediate future in contrast to present conditions. We still, therefore, maintain that the largest cities are overcrowded with physicians and that there is a growing opportunity for the right sort of men in smaller places. But such men must, of course, be leaders and not followers; they must take something from their recent training to their new field of work which is wanted and which has not already been provided. If some men have gone to smaller places only to find their "former reputations dwindling to a past glory," we could forthwith name many others whose work has brought reputation in abundance to themselves and to the cities in which they have located, and done much to offset the "withering influence" of the neighboring great city.

That the difficulties which our correspondent mentions, and which we fully appreciate, are not inherent in the small city as such, is shown by the conditions in Germany, where the town is measured by the man and not the man by the town. A distinguished professor at Heidelberg is said to have refused a professorship both in Berlin and Vienna, because he preferred to remain in the small place of his adoption, where he had gained his medical prestige. A somewhat similar case in America also comes to mind. The conditions in Germany will never be exactly paralleled in this country, but it is time that an attempt should be made to equalize, on the intellectual side, the medical knowledge, which is apparently concentrating itself in the largest cities. We are quite sure that our correspondent does not voice the sentiment of all his colleagues, and if he does there is all the more reason for the crusade which we have mildly urged.

ADRENALIN IN SHOCK.

THE practical importance of a means of successfully combating shock and collapse in anesthesia and after surgical operations lends special interest to the reports of experiments with adrenalin, to which attention has been directed of late. Valuable work on this subject has been recently done in Cleveland. It may be noted incidentally that some of it has been the work of a surgeon; with such a

man these investigations have a practical bearing which is not likely to be so constantly in the mind of an exclusively laboratory experimenter, and by emphasizing the close relationship between the fundamental medical sciences and the applicability of their laws in the treatment of disease, they direct attention to the value of careful experimental work in similar fields by medical and surgical practitioners.

The *Cleveland Medical Journal* recently published the report of some animal experiments on the action of adrenalin in shock.¹ The conclusions arrived at are very suggestive and make this use of adrenalin for human beings an important consideration. The writers draw attention to the fact that death from collapse is due as a rule not to a faulty heart, but to vasomotor paralysis, which by extreme relaxation of the arterioles produces a great fall in blood pressure. The various cardiac drugs, strychnia, digitalis and whiskey, stimulate the vasomotor system directly, but under such circumstances often insufficiently; saline infusions to some extent compensate for the lack of tone in the arterioles by mechanical action. Adrenalin stimulates directly the heart and blood vessels, acting almost as well when they are isolated from their nervous connections as when the latter are intact, and when used in full strength causes a prompt and powerful, though not prolonged, rise in blood pressure. The most advantageous action was observed when a small quantity of a greatly diluted (1-10,000) solution was injected subcutaneously, and the injected part strongly massaged. The dilution of the drug renders the stimulation less sudden and powerful; the massage makes its absorption gradual and its action prolonged. In rabbits, in collapse, this treatment produced a well-sustained blood pressure for over an hour and a half, without signs of failing. No bad after effects were observed, though, as the writers remark, the danger of secondary hemorrhage must be borne in mind.

The value of these experiments for the treatment of human beings remains to be investigated, but they have suggested the possibility of a means of treatment for certain surgical complications which may have important results.

In regard to the toxicity of epinephrin (adrenalin) Dr. Samuel Amberg, in the *Proceedings of the American Physiological Society*, reports experiments in which he found that the drug influences the heart by an initial stimulation of the vagus, followed by a paralysis. It has also a direct injurious effect on the heart and respiration. Hemorrhages are produced in various organs by over-administration of the drug.

¹ An Experimental Research into the Value of Adrenalin as a Stimulant. By May S. Miles, M.D., and William Muhlberg, M.D. December, 1902.

MEDICAL NOTES.

CARNEGIE INSTITUTION. — The first year book of the Carnegie Institution at Washington announces the plans for scientific investigations, with the appropriations made for them. Over \$175,000 is to be distributed for the uses of original investigation in different fields of literature, science and art. It is the purpose of the advisory committee of the Institution to substitute organized for unorganized effort wherever such organization of effort promises the best results and prevents needless duplication of work. The grants at first are to be made to individuals, working under proper guidance and supervision, for specific purposes, rather than to institutions for general purposes. The books, apparatus and materials purchased for these investigations are to be the property of the Institution and subject to its control. Money will also be appropriated for the publication of approved papers.

FOURTEENTH INTERNATIONAL MEDICAL CONGRESS. — With the expectation that a considerable number of physicians will desire to attend the International Medical Congress at Madrid, April 23-30, it has been arranged that a party will sail from New York City, April 11, in the steamer "*Princess Irene*" of the North German Lloyd Line, direct to Gibraltar. Tickets for the round trip, including hotel and sight-seeing, are placed at \$265, \$375 and \$550, according to the tour selected when in Europe. Among those who endorse the plan we note the names of Drs. W. W. Keen, Walter Wyman, Nicholas Senn and C. A. L. Reed.

THE DANGERS OF SHELLFISH IN ENGLAND. — Dr. Collingridge, chief medical officer of London, announces in an official report that all the Thames fisheries are contaminated with the bacilli of typhoid fever. He includes the Whitstable oyster beds, where 20% of the oysters examined were found to be infected. Whitebait, shrimps, smelts and cockles are condemned. At other points on the coast supplying the London market with shellfish, even worse conditions, due to sewage contamination, are said to exist.

A BILL TO PROTECT NURSES. — A bill has been presented by the Illinois State Association of Graduate Nurses to the State legislature, looking to the licensing and protection of professional nurses. It is proposed to submit all nurses to a State test, thereby preventing all untrained persons from assuming and working under the title of "graduate" or "trained" nurse.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Feb. 4, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 48, scarlatina 35, typhoid fever 11, measles 11, smallpox 6.

DECISION IN MALPRACTICE SUIT IN FAVOR OF DR. S. J. MIXTER. — A malpractice suit recently brought against Dr. S. J. Mixter of the Massachusetts General Hospital Staff, by a dissatisfied patient treated at the hospital, has been decided by Judge Brown in favor of Dr. Mixter. The decision was handed down without comment.

SCHOOL FOR CRIPPLED AND DEFORMED CHILDREN. — The building committee of the Boston Industrial School for Crippled and Deformed Children has decided to delay the erection of the new building until their fund has reached \$150,000. A more adequate equipment is needed than can be obtained by the \$100,000 which was originally deemed sufficient; \$98,000 has been already raised, and since the work of the school is hampered by its present cramped quarters, it is hoped that the additional sum will be quickly subscribed.

SMALLPOX IN BIDDEFORD, ME. — It is reported that smallpox is on the increase in Biddeford, Me. Fifty-six cases are at present under quarantine, and compulsory vaccination has been begun by the board of health. Owing to the prevalence of the disease, the city opera house has been closed.

RECEPTION TO DR. C. B. PORTER. — Dr. Charles B. Porter completed his last service as senior surgeon at the Massachusetts General Hospital on Jan. 31. He was appointed to the out-patient staff of the hospital in 1868. In 1875 he became visiting surgeon, and for the past seventeen years he has been the senior visiting surgeon. A dinner at the University Club was given to him by about forty former house officers, and later the same evening the visiting surgeons of the hospital held in his honor a reception at the "Tuileries," at which over two hundred physicians and surgeons were present.

THE OUTBREAK OF FOOT-AND-MOUTH DISEASE. — At a recent meeting of the Massachusetts Association of Boards of Health, Dr. Daniel E. Salmon, chief of the United States Bureau of Animal Industry, spoke on the outbreak of foot and mouth disease, which has been epidemic in New England since last August. In defending his radical plan of slaughtering all diseased herds, he referred to the extreme virulence of the present outbreak and

to the great financial loss, both from the death of cattle and from the interference of quarantine with commerce, which would result if the disease got beyond control; he also remarked that suffering among the poor might easily result from the shortage of the meat and milk supply if the disease spread much beyond its present limits.

Killing most of the infected animals has arrested the epidemic in New Hampshire, Vermont, Rhode Island and in all but a small section of Massachusetts. Since the disease appeared, 3,466 cattle have been affected and 2,787 slaughtered, not including several hundred sheep, goats and swine.

"ADULTERATION, SUBSTITUTION, OR CARELESSNESS."—We have received a letter from Messrs. Lehn & Fink of New York, in which they protest against the use of the first two words in the above caption of a letter from the secretary of the Massachusetts Board of Health, published on page 135 of the JOURNAL, of Jan. 29 last, but admit the accuracy of the statements in the body of Dr. Abbott's communication.

NEW YORK.

MOUNT SINAI HOSPITAL.—The annual meeting of the directors of the Mount Sinai Hospital was held on Jan. 25, and the fiftieth annual report, read by the president, stated that during the fiscal year ending Nov. 30, 1902, 34,879 patients had been treated, making a total of 75,569 since the founding of the hospital. The gifts to the hospital for the year amounted to \$85,890, making the total donations \$1,366,000. In addition, \$250,000 had been subscribed for the completion of the buildings now in process of construction. It is estimated that the new Mount Sinai Hospital will require about \$225,000 per year for its support.

A NEW POSITION.—At a meeting of the Board of Education, held Jan. 28, Dr. Luther H. Gulick was appointed director of physical training for the public schools in the city of New York. For several months the board has had under discussion the advisability of establishing such a position, and when this was determined upon Dr. Gulick was the unanimous choice of the members. He was graduated from the medical department of the University of the City of New York in 1886, and since that time has made physical education his life work. For fifteen years he has been in charge of the physical training department of the Young Men's Christian Association of New York, and in 1900 was elected president of the American Association for the Advancement of Physical Education. He is said to have invented the game of basket ball, and he has edited the rules of the game each year since it was originated.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

—On the last day (Jan. 29) of the annual meeting of the Medical Society of the State of New York, at Albany, the following officers were elected for the ensuing year: President, Dr. Algernon T. Bristow of Brooklyn; vice-president, Dr. Edward B. Angell of Rochester; secretary, Dr. F. C. Curtis of Albany; treasurer, Dr. O. D. Ball of Albany; committee on legislation, Drs. Frank Van Fleet of New York, Arthur G. Root of Albany, and Ernest Wende of Buffalo. The committee appointed to confer with a similar committee from the New York State Medical Association, with reference to the uniting of the two societies, made a report, but no action was taken in the matter, and the committee was continued.

Obituary.

MORRILL WYMAN, M.D.

DR. MORRILL WYMAN died at Cambridge on Jan. 30, in the ninety-first year of his age. He was confined to his bed less than a week, and till that time had apparently lost nothing of the bodily vigor and mental alertness which had characterized his active life.

He was the second son of Dr. Rufus Wyman, Harvard College, 1804, who, in 1817, became the first superintendent of the recently established McLean Asylum, and began there the more humane treatment of the insane, which has given this institution so prominent a place among hospitals of this sort. So great was his devotion to his task that for the first twelve years of his service he spent but one night outside of the asylum. His strong qualities of mind were inherited by his sons, Morrill and Jeffries, who, entering Harvard College in the class of 1833, were graduated in that year, began the study of medicine, and both received the degree of doctor of medicine in 1837 and entered on the practice of their profession. Morrill settled in Cambridge, and his success was immediate. Jeffries soon turned his attention to comparative anatomy, made for himself a great place in his science, and, dying in 1894, left with those who knew him the memory of a character without a fault. Lowell's sonnet and Holmes' obituary notice of him are memorials of loving admiration which few men earn.

It was not easy to think of the two brothers as apart, and they never really were, for one of the last acts of Morrill Wyman's life was the preparation of a reprint of one of his brother's scientific papers.

The same qualities that kept Rufus Wyman at his work in the asylum until age made his great task a burden to him kept the son an active practitioner of medicine until well past his eightieth year and left him a student of his beloved science to the very end.

Dr. Wyman's professional life was wholly spent in Cambridge,—during the course of it the small village grew to be a large city,—and he was the leading practitioner there through the whole period.

His relations to his fellow-practitioners were always marked by a desire to assist and support. He gained and kept the love and admiration of his fellows by his own devoted service to them.

During the active years of his life,—and it would not be correct to say that these ever ended,—he had a very large, probably one of the largest, medical practices in the State. He was a good citizen, interested in all good causes, willing to be right in a minority, no matter how small; but these interests if they required time were not allowed to interfere with the declared object of his life,—the care of the sick. He only took another hour from the time which men ordinarily give to rest or recreation, and he seemed to prosper in bodily health under an amount of work which to his associates seemed excessive, but of which he never complained.

He was extremely well read in the classics of medicine, and was always ready for the newest ideas in any of the sciences allied to medicine, and in his conceptions it was hardly possible to set the bounds too wide.

In 1846 he published in a volume of 400 pages a treatise on ventilation, founded upon a careful review of existing investigations upon the subject, to which were added many new and valuable experiments of his own making. The book is still an authoritative statement upon the subject treated.

Before 1850 the idea had occurred to him that the large accumulations of fluid in the pleural cavity could be more safely removed than by the very serious operation of thoracentesis, which had been in vogue from the days of Hippocrates, — an operation so serious that it was rarely used. Accordingly on Feb. 23, 1850, by means of an exploring needle and canula attached to a stomach pump, he removed a large quantity of fluid from the chest of a patient in much distress; a few days later the operation was repeated, the patient was relieved, and made a good recovery. On April 17 of the same year his friend Dr. H. I. Bowditch, whose thoughts had moved independently but in the same direction with Dr. Wyman's, asked the latter to perform his operation upon a patient of Dr. Bowditch's in the town of Woburn. The result convinced Dr. Bowditch that the operation was a good one, and he adopted it and fully described it in the paper on the subject published in the April number of *American Journal of the Medical Sciences*, 1852. Full credit was given to Dr. Wyman for his priority in an operation, which, it is only fair to say, was published to the world so effectually by Dr. Bowditch's frequent use and effective writing, that it is to-day a simple and practically safe means of relief in a distressing malady.

In 1863 he delivered the annual address before the Massachusetts Medical Society upon the reality and certainty of medicine. Following closely upon the brilliant exposition of the state of medicine given by Dr. Holmes in the address of 1860, so epigrammatically expressed that the public, at least, often misunderstood it, Dr. Wyman's sober statement is still one of the best defenses in our literature of the essential strength of the science and art of medicine.

Suffering himself from autumnal catarrh, he had carefully studied the malady in his own case and among his patients, and in 1872 published the result of his studies in a volume of 195 pages, in which he described the two forms prevalent here, the June or rose cold and the autumnal form, which begins in the last third of August.

The need of a hospital for Cambridge became a subject of much concern for him after 1880, and largely through his influence an interest was created in procuring a satisfactory building for a hospital already in existence, but without funds; he supervised every stage of the building operations and every detail of the internal arrangements. The ventilation of the wards was naturally a special object of his studies.

Sir John Simon once remarked that a hospital could not be said to be properly ventilated until each bed in it had a ventilation system of its own. This apparently insoluble problem was answered by Dr. Wyman with a piece of apparatus which did give an individual ventilation to each bed, and in so simple a fashion that the only wonder was that it had not been earlier suggested.

The motto on the hospital seal: "Man tends, God mends," was prepared by him, and was his translation of the words of one of his admired masters in medicine, Ambroise Paré, and fittingly represents his own reverent feeling for his chosen calling.

Correspondence.

DISADVANTAGES OF MEDICAL PRACTICE IN SMALLER CITIES AND TOWNS.

A NEW ENGLAND CITY OF TWENTY THOUSAND INHABITANTS,
January, 1903.

MR. EDITOR: In a recent number of your esteemed JOURNAL (Dec. 18, 1902) appeared an editorial having the

following caption, "Advantages of Medical Practice in Smaller Cities and Towns." The following quotations from it contain the gist of the whole article:

"It is evident to the most casual observer that the largest cities are overstocked with practitioners of medicine."

"The result is apparent. Men of ability are spending their lives in the struggle to obtain a competence, working against competition and difficulties which are often never overcome, under dwarfing conditions of incessant discomfort and anxiety. This applies to the average man of moderate ability; the exceptional man will, of course, succeed under any circumstances. In contrast to such a life stand the possibilities of a medical career in smaller places, where specialism is developing and where a competence with professional prominence is relatively easily attained. It is a source of increasing wonder why men of special attainments cannot realize these facts earlier in their career, before their enthusiasm has been sapped by the often hopeless struggle of a city practice."

Being one of those fellows of moderate ability, located in a small city where specialism is developing, I feel in a position to enter into a friendly controversy with you upon this subject.

The contrast you have drawn between the largest cities and the smaller cities and towns is like sunshine and shadow, — so difficult in the large and so easy to succeed in the small place. It is strange that the small places are not the ones to be overcrowded.

From the standpoint of one living in the small city the view is entirely different. The disadvantages of the small place in which to practice a specialty are numerous, the chief one being that the specialist in such a place finds his greatest competition to be, not the men of the same place, but the men and institutions of the large city. With easy railroad service and Boston within three or fewer hours, no city or town within this distance escapes the withering influence of this large city. A specialist in such a small place cannot hold a patient for treatment if the pathological condition is increasing and danger becoming more apparent. The case quickly goes to the large place. All that is left for the specialist of the small place is to handle the insignificant conditions, and remain a "boy" in the work.

Another disadvantage of the small place for a thoroughly equipped specialist is the lack of clinical work, dispensary work, there being in these places not the class of inhabitants from which to form a clinic. To apply laboratory and dispensary methods to private practice is impossible if one has to depend upon the favor of the public for support.

Again, a disadvantage of the small place is the lack of "atmosphere" to sustain a specialist. One who is interested in any special line of work and needs the contact of kindred minds, is apt to find the small place a vacuum in which he pants for men, societies and inspirations.

Again, the reputation that a thoroughly equipped specialist enjoys is as small as the place itself. A man cannot have a reputation exceeding the reputation of the place he lives in. A large city lends the influence of its size to the reputation of its professional men, no matter how small they are themselves. The reverse is true. I have known men of ability and great reputations to come from the large cities and locate in the small place only to find their reputations dwindle to the size of the place and become a past glory. Small place, small man. Big place, big man. This is the way the public estimates the ability of any man.

No, Mr. Editor, the small place has not all the advantages. The large place has not all the disadvantages. You have written earnestly from your point of view. From my point of view I have this to say to the young physician who is still Chauvinistic and desirous for high attainment: Stay in the place where there is professional contact — the clinic, laboratory, progressive ideas and growth in knowledge, even if you have to starve for it. Don't come into the small place, isolated, breathing thin air, feeding off your own mind and heart, and always being a man of small professional reputation. Don't!

X.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 24, 1903.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Scarlet fever.	
New York	3,785,156	1,408	401	30.91	18.56	3.37	.35	1.21	
Chicago	1,885,000	551	149	26.33	19.24	1.58	4.90	1.27	
Philadelphia	1,378,327	615	154	18.54	30.49	1.30	5.69	.65	
St. Louis	618,481	—	—	—	—	—	—	—	
Baltimore	533,719	249	78	18.47	20.08	.40	.80	.40	
Cleveland	427,731	—	—	—	—	—	—	—	
Buffalo	387,904	—	—	—	—	—	—	—	
Pittsburg	351,745	181	34	25.95	18.79	2.29	6.10	2.29	
Cincinnati	335,140	—	—	—	—	—	—	—	
Milwaukee	315,307	—	—	—	—	—	—	—	
Washington	265,108	—	—	—	—	—	—	—	
Providence	181,330	93	36	25.00	28.91	1.08	1.06	—	
Boston	603,168	230	60	19.56	24.78	1.30	.43	—	
Worcester	183,044	40	9	10.00	15.00	—	—	—	
Fall River	115,549	47	24	17.02	14.89	2.12	—	—	
Lowell	101,959	30	5	16.67	23.33	3.33	3.33	—	
Cambridge	98,639	25	6	24.00	12.00	—	4.00	—	
Lynn	73,497	30	5	15.00	5.00	—	—	—	
Lawrence	68,766	34	12	25.00	29.16	4.16	4.16	—	
Springfield	69,839	36	8	13.88	22.22	—	2.78	5.56	
Somerville	68,110	30	3	5.00	30.00	—	—	—	
New Bedford	67,198	41	14	19.51	41.46	2.44	2.44	9.76	
Holyoke	49,236	31	3	19.05	33.33	—	—	—	
Brookton	44,373	11	1	—	—	—	—	—	
Haverhill	42,104	18	4	16.67	22.22	—	—	—	
Newton	37,794	10	5	—	30.00	—	—	—	
Salem	35,876	30	7	10.00	10.00	—	—	—	
Malden	35,236	5	1	40.00	—	—	—	30.00	
Chelsea	35,876	19	—	—	25.00	—	—	—	
Fitchburg	35,069	—	—	—	—	—	—	—	
Taunton	33,656	—	—	—	—	—	—	—	
Everett	33,630	19	—	25.00	—	—	—	8.33	
North Adams	27,893	3	1	—	—	—	—	—	
Gloucester	26,131	10	1	20.00	—	10.00	—	—	
Quincy	26,043	8	—	—	—	—	—	—	
Waltham	25,138	9	2	33.33	22.22	—	—	—	
Brookline	22,608	8	1	37.50	12.50	12.50	—	—	
Pittsfield	22,589	8	1	35.35	35.35	—	—	—	
Chicopee	21,081	9	5	11.11	11.11	11.11	—	—	
Medford	20,963	3	1	—	100.00	—	—	—	
Northampton	19,853	9	1	—	—	—	—	—	
Beverly	15,902	8	—	—	—	—	—	—	
Clinton	15,161	6	1	33.33	—	—	16.67	—	
Leominster	14,806	—	—	—	—	—	—	—	
Newburyport	14,478	4	2	—	25.00	—	—	—	
Woburn	14,300	4	1	50.00	—	—	—	—	
Hyde Park	14,175	5	1	30.00	—	—	—	—	
Adams	13,745	—	—	—	—	—	—	—	
Attleboro	13,677	—	—	—	—	—	—	—	
Marlboro	13,609	7	2	14.29	28.57	—	—	—	
Melrose	13,600	5	—	30.00	40.00	—	—	—	
Westfield	13,418	2	1	—	—	—	—	—	
Milford	13,139	—	—	—	—	—	—	—	
Revere	12,732	3	—	—	—	—	—	—	
Frammingham	12,534	4	2	25.00	25.00	—	—	—	
Peabody	12,179	—	—	—	—	—	—	—	
Gardner	11,938	—	—	—	—	—	—	—	
Weymouth	11,344	5	0	—	60.00	—	—	—	
Southbridge	11,268	1	—	—	100.00	—	—	—	
Watertown	11,077	1	—	—	—	—	—	—	
Plymouth	10,730	—	—	—	—	—	—	—	

Deaths reported, 8,772; under five years of age, 1,048; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 779, acute lung diseases 673, consumption 405, scarlet fever 40, whooping cough 36, cerebrospinal meningitis 4, smallpox 10, erysipelas 7, measles 33, typhoid fever 35, diarrheal diseases 73, diphtheria and croup 78.


From whooping cough, New York 5, Chicago 7, Philadelphia 3, Baltimore 1, Pittsburg 2, Providence 6, Boston 6, Cambridge, Lynn, Lawrence, Somerville, Haverhill and Everett 1 each. From erysipelas, Chicago 1, Philadelphia 4, Baltimore 1, Pittsburg 1. From smallpox, Chicago 1, Philadelphia 2, Pittsburg 4 and Boston 3.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,023, for the week ending Jan. 10, the death-rate was 18.5. Deaths reported, 5,350; acute diseases of the respiratory organs (London) 854, whooping cough 132, diphtheria 73, measles 136, smallpox 10, scarlet fever 65.

The death-rate ranged from 10.0 in Hornsey to 23.2 in Great Yarmouth; London 18.8, West Ham 20.9, Brighton 15.4, Portsmouth 17.7, Southampton 12.3, Plymouth 20.5, Bristol 16.0, Birmingham 20.2, Leicester 14.2, Nottingham 19.3, Bolton 18.9, Manchester 21.7, Salford 20.3, Bradford 15.6, Leeds 19.3, Hull 18.2, New Castle-on-Tyne 16.7, Cardiff 21.4, Rhondda 24.4, Liverpool 23.7, Newport (Mon.) 20.0.

METEOROLOGICAL RECORD

For the week ending Jan. 24, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Bar- ometer.	Ther- mometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r °		Rainfall in inches.			
		Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.		
S. M. T. W. T. F. S.	18 19 20 21 22 23 24	29.96 30.54 30.57 29.67 29.90 30.04 30.47	20 7 20 38 36 24 11	36 15 33 47 40 38 17	3 — 9 33 33 39 5	30 52 53 53 76 61 58	68 55 68 78 84 64 65	49 54 54 60 60 60 63	W W W W SE SW NW	W W W W SE W W	18 8 8 8 14 7 10	18 8 8 8 17 10 18	C C C C R C C C C C F. O.	C C C C O O C C C C C C O.	0 0 0 0 0 1.14 0 0 0 0 0 0 0
	30.16	32	13			64									1.14

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. 30° Mean for week.

MARINE HOSPITAL SERVICE.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., for the physical examination of an applicant for position in Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon B. S. Warren, recorder.

Board convened to meet at the Marine Hospital, San Francisco, Cal., Feb. 16, 1903, for the examination of Assistant Surgeons M. H. Foster and L. L. Lumsden to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon C. H. Gardner, Passed Assistant Surgeon H. S. Cumming, recorder.

RECENT DEATHS.

MORRILL WYMAN, M.D., M.M.S.S., died in Cambridge, Jan. 30, 1903, aged ninety years.

LUCIAN H. SHEPHERD, M.D., a well-known practitioner of Oswego, N. Y., died on Jan. 24 of typhoid fever, at the age of thirty-seven years.

HENRY ADDISON MANDEVILLE, M.D., of South Orange, N. J., died suddenly on Jan. 31. He was born in Newburgh on the Hudson, Dec. 16, 1858, and received his collegiate education in the University of the City of New York. He was graduated in medicine from the College of Physicians and Surgeons, New York, and afterwards served as interne at the Presbyterian Hospital in that city. For several years he was associated in practice with the late Dr. Thomas H. Burchard in New York, and about fifteen years ago removed to South Orange, where he took a prominent position in the affairs of the community.

SOCIETY NOTICES.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The spring meeting was held on Wednesday, Feb. 4, at one o'clock, P.M., at the new building of the Boston Medical Library, 8 The Fenway. The following paper will be read: "Death from a Single Vaginal Douche." Report of two cases by Dr. G. deN. Hough. Informal report of cases.

FRED E. JONES, M.D., Secretary.

QUINCY, Jan. 27, 1903.

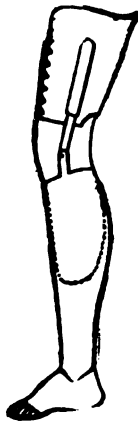
MEDICAL SOCIETY OF THE MISSOURI VALLEY.—The spring meeting of this association will be held in Council Bluffs, Iowa, on Thursday and Friday, March 19 and 20. The membership of this society includes the representative men of Iowa, Nebraska, Missouri, Kansas, North and South Dakota.

J. M. BARSTOW, president, Council Bluffs, Iowa.
CHAS. WOOD FASSETT, secretary, St. Joseph, Mo.

APPOINTMENTS.

DR. GEORGE F. JELLY has been appointed by the trustees of the Massachusetts General Hospital consulting physician for mental disease at that institution.

DR. A. H. HARRINGTON has resigned the superintendency of the Danvers Insane Hospital, and Dr. C. W. Page of the Mid-dletown Asylum has recently been appointed to his place.



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The following are the Courses provided in the Graduate Department for 1902-1903.

No.	Subject.	Instructor.	Place.	Time.	Fee.
1	Anatomy of the Joints	Dr. Dwight	Medical School	Special *	\$25
2	Dissection Courses	Dr. J. Warren	Medical School	After Nov. 1	20
3	Special Anatom. Instruction	Dr. Dwight	Medical School	Special *	Special *
4	Histology and Microscopy	Dr. F. T. Lewis	Medical School	Feb.	25
5	Elem. Human Embryology	Drs. Bremer and Woods	Medical School	Feb.—June	25
6	Advanced Embryology	Drs. Minot, Bremer, Lewis	Medical School	Feb.—June	75
7	Physiology	Dr. W. T. Porter	Medical School	Special *	Special *
8	Toxicology and Medico-Legal Examination of Blood	Dr. Wood	Medical School	Oct.—Jan.	30
9	Clinical Examination of Urine	Drs. Wood and Emerson	Medical School	Oct.—Jan.	30
10	Clinical Haematology and Examination of Gastric Contents	Dr. Hewes	Medical School	Oct.—Jan.	30
11	Physiological Chemistry	Dr. Pfaff	Medical School	Special *	Special *
12	Path. and Phys. Chemistry	Dr. Emerson	Med. Sch. or Boston City H.	Special *	Special *
13	Bacteriology	Dr. Ernst	Medical School	Special *	25
14	Practical Pathology	Dr. Councilman	Medical School	Special *	30-50
15	Pathological Histology	Dr. Councilman	Medical School	Special *	30
16	Pathological Anatomy	Dr. Magrath	Medical School	Special *	25
17	Neuropathology	Dr. Taylor	Medical School	Special *	25
18	Advanced Neuropathology	Dr. Taylor	Medical School	Special *	75-125
19	Surgical Pathology	Dr. Nichols	Medical School	April	25
20	Diagnosis of New Growths	Dr. Whitney	Mass. General Hospital	Special *	15
21	Comparative Pathology	Dr. Smith	Busey Institution	Oct.—June	Special *
22	Clinical Medicine	Dr. Vickery	Mass. General Hospital	Oct.	15
23	Clinical Diagnosis	Dr. J. M. Jackson	Mass. General Hospital	Nov.—Feb.	15
24	Infectious Diseases	Dr. McCollom	Boston City Hospital	Oct., Nov.	25
25	Intubation	Dr. McCollom	Boston City Hospital	Special *	25
26	Sputum Analysis	Dr. W. H. Smith	Mass. General Hospital	Nov., Dec., Jan.	15
27	Clinical Medicine	Dr. Joslin	Boston City Hospital	April—May	25
28	Surgical Research			Special	Special *
29	Special Surgical Work			Special	Special *
30	Minor Surgery	Dr. Lund	Boston City Hospital	April—May	20
31	Minor Surgery	Dr. J. B. Blake	Boston City Hospital	Nov.—May	30
32	Clinical and Operative Surgery	Dr. Warren, Porter, Beach	Mass. General Hospital	Oct.—Feb.	30
33	Clinical Surgery	Dr. M. H. Richardson	Mass. General Hospital	Feb., May	25
34	Clinical Surgery	Dr. Mumford	Mass. General Hospital	Feb., March, April, May	25
35	Minor Surgery	Dr. Mumford	Mass. General Hospital	Oct.—Jan.	25
36	Clinical, Operative, Genito-urinary, Pathological and Minor Surgery	Drs. Monks and Thorndike	Boston City Hospital	Oct., Nov., Jan., Feb.	25
37	Clinical and Operative Surgery	Dr. Munro and Lund	Boston City Hospital	Oct., Nov.	25
38	Genito-Urinary Surgery	Dr. Thorndike	Boston City Hospital	Oct.—Nov.	25
39	Fractures	Dr. Scudder	Mass. General Hospital	Oct., Nov.	20
40	Surgical Diagnosis	Dr. Scudder	Mass. General Hospital	Nov.—Dec.	20
41	Genito-Urinary Surgery	Dr. Scudder	Mass. General Hospital	Jan.—Feb.	20
42	After Treatment	Dr. Scudder	Mass. General Hospital	Feb., March	20
43	Genito-Urinary Surgery	Dr. Watson	Boston City Hospital	April, May	20
44	Surgical Diagnosis	Dr. C. A. Porter	Mass. General Hospital	Oct.—Jan.	15
45	Minor Surgery	Dr. Balch	Mass. General Hospital	Feb., March	20
46	Minor Surgery	Dr. Balch	Mass. General Hospital	April, May	20
47	Clinical and Operative Surgery	Dr. Cobb	Mass. General Hospital	Oct.—Nov.	20
48	Orthopedic Surgery	Dr. Bradford	Children's Hospital	Nov.	10
49	Clinical Obstetrics	Dr. W. L. Richardson	Boston Lying-in Hospital	Nov.—Jan., May—June	25
50	Clinical Obstetrics	Dr. C. M. Green	Boston Lying-in Hospital	Feb., March, April	25
51	Clinical Obstetrics	Dr. Higgins	Boston Lying-in Hospital	Oct.	25
52	Clinical Obstetrics	Drs. Newell, Swain, and Friedman	Boston Lying-in Hospital	Oct.—May	25
53	Operative Obstetrics	Dr. C. M. Green	Medical School	Special *	25
54	Operative Obstetrics	Dr. Higgins	Medical School	Special *	25
55	Gynecology	Dr. Haven	Boston City Hospital	Jan., Feb., March	25
56	Gynecology	Dr. C. M. Green	Boston City Hospital	Oct., Nov., Dec.	25
57	Gynecology	Dr. Storer	Carney Hospital	Oct., Nov., Dec., April, May, June	25
58	Gynecology	Dr. Storer	Boston Dispensary	Jan., Feb., March	25
59	Gynecology	Dr. Storer	St. Elizabeth's Hospital	April, May, June	25
60	Operative Gynecology	Dr. Davenport	Medical School	Special *	25
61	Pediatrics	Dr. Craigin	Children's Hospital	Oct., Nov.	20
62	Pediatrics	Dr. Craigin	Children's Hospital	Nov., Dec.	20
63	Pediatrics	Dr. Buckingham	Children's Hospital	Jan., Feb.	20
64	Pediatrics	Dr. Morse	Infants' Hospital	April, May	20
65	Pediatrics	Dr. Morse	Infants' Hospital	March, April	20
66	Dermatology	Dr. Bowen	Mass. General Hospital	Oct.—June	25
67	Syphilis	Dr. Post	Boston Dispensary	April, May, June	25
68	Advanced Neurology	Dr. Putnam	Mass. General Hospital	Special *	Special *
69	Neurology	Dr. Knapp	Boston City Hospital	Feb., March	20
70	Neurology	Dr. Knapp	Boston City Hospital	April, May	20
71	Neurology	Dr. Walton	Mass. General Hospital	March—April	20
72	Psychiatry	Dr. Cowles	McLean Hospital	Special *	25
73	Otology	Dr. Crockett	Eye and Ear Infirmary	Feb.—April	20
74	Otology	Dr. Hammond	Eye and Ear Infirmary	Nov.—Jan.	25
75	Anatomy of the Ear	Dr. Hammond	Medical School	Special *	25
76	Clinical Ophthalmology	Dr. Wadsworth	Eye and Ear Infirmary	Feb., March	25
77	Ophthalmology	Dr. Standish	Eye and Ear Infirmary	April	25
78	Ophthalmology	Dr. Quackenbush	Eye and Ear Infirmary	Oct.—Nov.	20
79	Ophthalmology	Dr. Jack	Eye and Ear Infirmary	Oct.—Nov.	20
80	Rhinology and Laryngology	Dr. DeBiols	Boston City Hospital	Jan., Feb., March	20
81	Rhinology and Laryngology	Dr. Farlow	Boston City Hospital	April, May	20
82	Rhinology and Laryngology	Dr. Coolidge	Mass. General Hospital	Feb., March	20
83	Hygiene	Dr. Harrington	Medical School	Special *	25
84	Disinfection	Dr. Harrington	Medical School	Special *	20
85	Analysis of water, food, etc.	Dr. Harrington	Medical School	Special *	20
86	Pharmacology	Drs. Pfaff and Vejux-Tyrolde	Medical School	Special *	Special *

* To be arranged with instructor.

† Women admitted.

‡ Women admitted conditionally.

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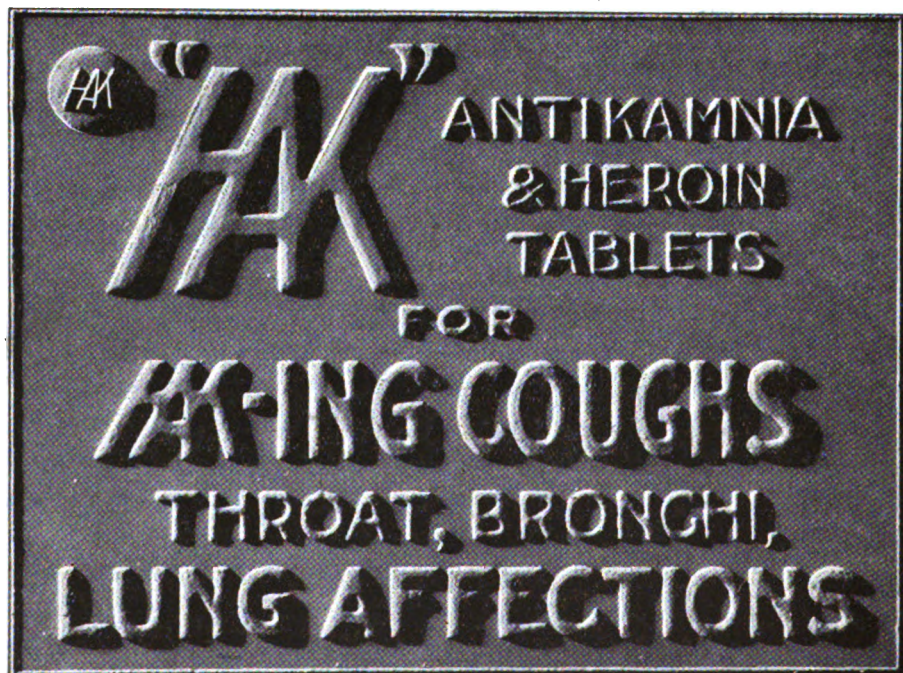
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Original Articles.

IRRIGATION IN ACUTE URETHRITIS.

BY ARTHUR L. CHUTE, M.D., BOSTON.

It is not my purpose to take up in detail the whole question of irrigation in acute urethritis, but to give general conclusions drawn from my own experience with this method of treatment; also to correct, if possible, some of the misapprehensions which commonly exist regarding it.

To begin with the misapprehensions: Of these, probably the most widely held is the idea that irrigation is an attempt at aborting the disease. If true, this would offer a considerable objection to the procedure, for it is self-evident that the application, to the urethra, of any antiseptic solution strong enough to kill the gonococci buried in its walls, must kill, or at least greatly injure, the cells themselves. For this reason attempts at aborting the disease are usually looked upon with a well-merited suspicion.

In the irrigation treatment of urethritis no attempt is made at a real bactericidal action. The irrigation acts by mechanically washing away the products of the disease, thus cleansing the urethra and placing the membrane in as favorable a condition as possible to resist the spread of the trouble; the heat and slight irritative action of the solution brings about an increased blood supply and phagocytosis, by which means the deeper layers of the urethra are freed of their organisms; the mildly antiseptic character of the irrigating fluid probably has a somewhat inhibitory action on the growth of the organisms and the spreading of the process. This action is not that seen in attempts at aborting the disease, where a solution is applied strong enough to, and for the express purpose of, destroying the organisms, situated as they are, in the cells of the urethral walls.

A second objection offered against irrigation in acute urethritis is that it increases the probability of infection of the posterior urethra. It is true, especially in clinics, that a slight grade of posterior urethritis is common in cases treated by irrigation; a careful investigation, however, of cases treated expectantly will show that a posterior urethritis is very common here as well, much more common than is usually supposed. My feeling is that as regards posterior urethritis the irrigated cases have it somewhat less frequently and have far less discomfort from it than do the cases treated expectantly. Their greater comfort in this respect is due to the fact that in the posterior urethra, as in the anterior, irrigation tends to make the process a superficial one.

Another common misapprehension is as to the time when irrigations should be begun. Some suppose that irrigation should not be started until the disease has passed its most acute stage. On the contrary, one should begin irrigations as soon as the diagnosis is made, for it is during the acute stage that they add most to the patient's comfort; also, the sooner they are begun the more limited the disease should be.

Some of the advantages which, in my opinion, the irrigation treatment offers to the patient with acute urethritis are: A great increase in comfort;

in the vast majority of cases a speedier recovery; a somewhat lessened liability to the complications which attend the acute stage; probably a very considerably decreased liability to the late complications.

The most striking contrast between patients treated by irrigation and other methods is the great difference in the amount of urethral discharge. This diminution is usually noticed after a single irrigation, although it may not occur until several have been given. From having a profuse discharge which requires constant attention, the amount is cut down to so small a quantity as to be hardly noticeable. One or two irrigations usually decrease the ardor to such an extent that passing urine is not attended with any particular discomfort. If irrigations are begun when the patient first notices the disease, it is unusual to have chordee, showing, perhaps, as conclusively as anything, the lessened infiltration of the urethra which takes place. If chordee is already a troublesome symptom, it is usual to have it diminish in frequency and intensity. The practical absence, or the presence in a much less degree than usual, of the discharge, ardor and chordee add very greatly to a patient's comfort.

I have stated that in my opinion patients make a speedier recovery in the great majority of instances. My definition of "recovery" would be absolute disappearance of the discharge, and in first attacks either a shredless urine or a urine with only one or two fine, non-infectious shreds. When the attack is not the first, and there are urethral lesions of long standing, shredless urine may be more than can be attained, but before one can consider a patient well the shreds must be very few and without gonococci. This condition, I believe, is brought about by irrigation more speedily than by any other treatment.

As to the time requisite for this, it is very common to be unable, even after a careful search, to find gonococci after a week to ten days' treatment. I have seen instances where, the day after a patient's first irrigation, a discharge which previously was loaded with gonococci contained so few that they were rather hard to find. The post-gonorrheal urethritis often persists to the full limit of six weeks, which has been for so long a time the period set down as the duration of an ordinary urethritis. By the end of that time most patients who have been treated faithfully will be practically shred free. One sees instances where they are not; others where the urine is shredless in four weeks, occasionally earlier. While one sees instances where the course of the disease is a much longer one, these cases are rather exceptional when the patient has been faithful as regards treatment. The stage of shred formation does not persist so interminably as in a large percentage of cases treated expectantly. This is probably due to the fact that the infection is much more superficial and the urethral glands less deeply diseased.

To the fact that under irrigation the disease remains more superficial is to be ascribed the relative infrequency of the complications of the acute stage. Cowperitis, epididymitis, prostatitis, vesiculitis—all occur, especially in clinics, but they are rarer than in patients treated by the expectant plan. I have never seen a folliculitis develop in an irrigated pa-

tient. In two instances, at least, patients who have had a good deal of joint pain in previous attacks have presented themselves with a new attack accompanied by joint pain; in both instances the pain cleared up and did not return during an attack treated by irrigation.

I have stated that the probability of late complications is decreased by irrigations during the acute urethritis.

It yet remains to be seen whether stricture of the urethra is really going to be less common in patients who are so treated. The fact that the urethral involvement is more superficial and therefore clears up more readily and definitely would point to the probability of this. If true, and if by irrigation, one can decrease the frequency of stricture, especially that of the deep urethra, it is a matter of no small importance.

In carrying out this treatment, the irrigations should be begun at the earliest possible moment.

The method is applicable to nearly all patients; occasionally, however, one will be found who cannot bear it; such a patient is made less comfortable rather than more so; both his ardor and discharge are increased rather than diminished. With such patients, and they are rare, irrigations should be given up, and the treatment by internal medication carried out.

The technique of irrigation is simple, especially irrigation of the anterior urethra. While a reservoir made for the purpose, which can be easily raised and lowered, is most convenient, a rubber douche bag serves very well. This reservoir should ordinarily be about three or four feet above the patient's pelvis, whether he is sitting on a chair or lying down. One needs beside this reservoir only a soft catheter, a glass nozzle to join the tubing from the reservoir to the catheter and some soluble lubricant. If one is to irrigate the anterior urethra, the patient, after passing urine, sits on the edge of a chair, his trousers stripped down below his knees; his knees should be well separated. A sterile catheter coated with some soluble lubricant is introduced a short distance into the urethra, the tubing from the reservoir is attached and the fluid allowed to flow into the urethra and return along the catheter. As the fluid comes from the meatus it is caught in a basin, which the patient holds between his knees. The catheter is worked slowly and gently down to the cut-off muscle, and the full quantity of the irrigation run through the urethra. Soft rubber catheters, 12-15 inclusive of the French scale, are the sizes which answer this purpose best. As vaseline gives to the urethra a coating more or less impermeable to the irrigating fluid, a soluble lubricant should be used, such, for instance, as glycerine, muco-lubricans or lubricochondrin. If the meatus is a very narrow one, or if there are narrowed places in the anterior urethra, the irrigation is best carried out by filling and emptying the urethra by means of a blunt glass or soft rubber nozzle. This nozzle is alternately crowded into and then removed from the meatus. The Valentine nozzle or some one of its modifications is desirable for this purpose. This method is not so clean, nor do I think it so accurate, as irrigation by means of a catheter. A considerable number of men, however, prefer it as a means of irrigating the anterior urethra.

When we wish to irrigate the posterior urethra the patient should, as a rule, lie down. His bladder being empty, a catheter is introduced to just behind the cut-off muscle, and the fluid allowed to run over the posterior urethra and collect in the bladder, until that viscus is comfortably full. The fluid may then be drawn off through the catheter, and the process repeated once or twice, or the bladder being full, the catheter may be withdrawn to just anterior to the cut-off muscle and the rest of the solution allowed to run over the anterior urethra. The fluid which is left in the bladder the patient urinates later.

If in instances where we wish to irrigate the posterior urethra the patient has an extremely sensitive urethra or a tight meatus, so that a catheter is not easily passed, we can carry out the irrigation by means of Janet's method. The patient should be recumbent for this. A conical nozzle is introduced into the meatus snugly enough so that there is no leaking around it; the patient is instructed to take deep breaths or to make an attempt to pass urine. With a column of fluid of about four feet the resistance of the cut-off muscle is usually overcome, and the fluid flows into the bladder. If the patient is apprehensive and holds his muscles rigid, it may require considerable patience to overcome the cut-off muscle. The reservoir may have to be raised even to a height of six feet. Once, however, the cut-off muscle has been forced successfully, it is unusual to have a repetition of this trouble. As soon as the bladder is comfortably full the patient is allowed to empty it. This filling and emptying of the bladder may be repeated several times. A large number of men consider this the method of choice in irrigating the posterior urethra.

The solution which has given the best results, and which I on the whole prefer for irrigation, is permanganate of potash; a solution of 1-8000 or 1-10000 is usually so mild as to give but little discomfort, even in patients with very acute urethritis. As the urethra becomes accustomed to the irrigation and the disease less acute, the strength may be gradually increased to 1-3000 or even 1-2000. Protargol 1-2000 or 1-1000 gives good results. I cannot see, however, that it has any advantages over permanganate. Nitrate of silver acts well, but must be used in weak solutions, 1-15000 to 1-10000, and gradually increased. The nitrate solution seems to me better adapted to the treatment of the chronic than of the acute stage.

The temperature of the solution used should be a little over 100° F. It should be used in quantities varying from one to two quarts. Some patients who do not do well on small irrigations improve as soon as large quantities are used. When it is possible, two irrigations a day should be given for the first week, then a daily irrigation for a week, and later irrigations at intervals of two days or twice a week.

It is my custom to be guided very largely by the microscopic findings in the treatment of acute urethritis. As long as there are gonococci to be found in the discharge, I use frequent rather copious irrigations of the milder solutions of permanganate or protargol. The anterior urethra only is irrigated when the disease is confined to that part of the canal; the whole canal if there is posterior infection.

When the gonococci have disappeared and the relatively large number of urethral cells in the discharge points to the post-gonorrheal stage, irrigations of nitrate of silver or of stronger permanganate may be used. This post-gonorrheal stage is where nitrate of silver gives us its best results. The urethra is less tender, so that the nitrate may be used in solutions of 1-4000, 1-3000, or sometimes stronger without more than slight discomfort. It will often exert a most rapid action in clearing up the post-infectious stage of a gonorrhea. Copper sulphate in solutions of 1-2000 to 1-500 may occasionally be used with advantage in this stage, more especially if the disease is confined to the anterior urethra. I have found even weak solutions of sulphate of copper rather painful when used as irrigations for the posterior urethra.

Irrigations can be used with advantage, at more or less frequent intervals, as long as either the first or second urine is turbid; a considerable proportion, particularly of first attacks, will recover without the use of any other treatment. When the only signs of the disease are shreds in a clear first or second urine, irrigations are of less value, and should these shreds persist, irrigation should give way to, or be used in conjunction with, the various recognized means of treating chronic urethral lesions.

Of the list of drugs recommended for internal use, I believe the best is sandalwood oil, given in capsules containing 10 drops; when it causes unpleasant gastric symptoms or renal pain it should be given up. It should be the natural oil. Copaiba is also of use, but is less efficient than sandalwood oil and more likely to upset digestion, an erythema from its use is common. It may be taken in from 10- to 20-drop doses, either in capsules or in a mixture.

The regulation of diet, work, exercise and amusement so as to avoid all that is exciting or stimulating is a valuable adjuvant to irrigations, and one that should not be lost sight of.

To appreciate to the full the advantages which irrigation offers patients during their acute urethritis one should have under simultaneous observation parallel series of cases. This is possible in large clinics, as many patients are unwilling to take the time for careful treatment. I have had the opportunity of watching a large number of clinic cases under the various methods of treatment. In the foregoing I have purposely not attempted a careful statistical analysis of cases, but have given, as being on the whole quite as accurate, the general impression which I have received from watching the progress of these patients.

To summarize, these conclusions are:

That while irrigation is at times and in occasional instances disappointing, it gives in acute urethritis the best individual results, the best general results:

That it offers the patient the greatest immediate comfort, the greatest immediate safety:

That as prompt if not more prompt recovery takes place than by any other means:

That there is a more certain recovery, and with less probability of late complications.

A REPORT OF A CASE OF MULTIPLE NEURITIS OF QUESTIONABLE ORIGIN.¹

BY ARTHUR W. MARSH, M.D., WORCESTER, MASS., WITH REMARKS
BY GEORGE C. SMITH, M.D., BOSTON.

THE case to be reported occurred in a female fifty-two years of age, about five feet five inches tall, and weighing 170 pounds. She was married and had five children, all of whom are living.

In her family history there is only one fact of importance; namely, a strong neurotic constitution throughout. The mother died of an obscure disease, having been insane part of the time.

Only two things in her past history need be considered as having any possible bearing on her final sickness:

First, after the birth of her first child, she had what she called puerperal mania. She may have been right, but, from what I could gather from the statements of her husband and relatives, I am inclined to believe that she had puerperal fever with delirium. At any rate, in about two months after the birth of the child she assumed her usual duties and was able to travel for a day and a half to her old home. Subsequently she had four other children without a return of the former trouble.

Second, a few years ago, on account of excessive flowing at menstruation, it was deemed advisable to curette the uterus. No abnormal growth was found in the pelvis, and a microscopical examination of the scrapings revealed no sign of malignant disease. After curettage menstruation occurred nearly regularly until the last month of her life, with no return of excessive flowing. My reason for mentioning this is to exclude cancer from having anything to do with the sickness to be described. There being no evidence of cancer elsewhere, it need not be referred to again.

No other sickness of any importance occurred during her life up to this past winter. On the whole, she was a woman who looked as though she was always well. There has been, however, a great deal of sickness in her family, and her children cannot be considered strong. When, however, you search for a reason for this you find a family history very free from any constitutional disease like tuberculosis, cancer, etc. The only thing marked is the nervous element which takes the hysterical rather than the neurasthenic type. So much sickness occurring in her family was naturally a source of great anxiety to her.

Another important matter, perhaps having a connection with the case, was the condition of the drainage in the house. In summer when the family are out of doors more, and away from their city home nearly all the time, they are seldom sick. In fact, they live under very favorable hygienic surroundings. Yet, during the past three winters, I have been called in to treat every member of the family more than once for various complaints, including tonsillitis, enteritis, a fever running four weeks and looking like typhoid but in which the Widal and diazo reactions were absent, several attacks of diarrhea, and, in the husband's case, a hard cold every winter which left him with a very

¹ Read before the District Medical Society at Worcester, Mass., Nov. 12, 1902.

persistent cough, often lasting the greater part of the season. Last winter a son was taken sick with otitis media, and after recovery was operated upon for the removal of adenoid tissue. Following this operation he was taken sick with what I thought was a slight septic infection, and due to some germs reaching the naso-pharynx from the Eustachian tubes. He was too slow in recovering, however, to satisfactorily explain it on this ground alone.

While the boy was convalescing, the mother went away for a few days' visit. On her return, while riding home, she felt chilly. That night her temperature was 102°. There was no headache, backache or pain anywhere. The pharynx looked congested, and she complained of its feeling rough. In two days the temperature came down to normal, but in spite of the lack of pain and the insignificance of this sickness, she did not gain her strength. The weakness resembled that following a severe attack of influenza.

It was at this time that an expert examined the plumbing in the house and found a faulty pipe under the basement that allowed sewer gas to permeate the whole house. This probably explains the cause of so much sickness in the family during the winter with freedom from it summers. At least it may have rendered them more vulnerable to invasion by germs without being the actual cause of so much sickness.

Returning to the history of our case—in the beginning the urine showed neither albumen nor sugar. The sediment was not examined. On account of the general weakness displayed she was given strychnine, a generous diet and general massage.

It was not long, however, before she complained of feeling more tired after the massage than before, and thought it hurt her, so it was discontinued. At this time I was seeing her three times a week, and found her morning temperature normal. The evening temperature was not taken, there being no nurse at that time, but as soon as she began to complain of pain the evening temperature was taken, and found to be either normal or slightly raised to 99.5°. Along with the advent of pain came increased nervousness, manifested in fits of crying and irritability. Owing to her excitable condition, together with the lack of tenderness in the muscles and joints, I, with members of the family, was inclined to regard the case as one of hysteria. To favor this diagnosis were sensitive points over the spine and ovarian regions, with lively knee jerks, dilated pupils that reacted perfectly to light and distance, and the passage of enormous quantities of pale urine with a low specific gravity. Against it was the continued run of fever gradually rising, now having reached 100° to 101° in the evening.

A consultation with Dr. Smith of Boston was held, and it was decided to remove her to the country to get rid of the noise of the city, and to eliminate sewer gas poisoning as a cause of the fever. We hoped to secure by this move a drop nearer to normal in the temperature and a decrease in pain, which by this time had become quite severe. Before she could be removed, however, the right leg began to swell and, soon after removal, it became sensitive to the touch. The temperature, instead of

dropping, rose higher, and, since pain in the arms and other leg had appeared, the diagnosis of multiple neuritis was established. From the last of February to the first week in April all four extremities became involved in the following order: right leg and arm, left arm and leg. Each limb, in turn, became intensively sensitive to the touch and swollen below the elbow or knee. The pain was intense, requiring continuous use of drugs, and very difficult of control even then. Antipyrine and phenacetin, with bromide of sodium and cannabis Indica, were tried, but they relieved only partially, and soon seemed to lose their effect. Later we were compelled to resort to morphine, and even with this drug large doses were required.

The pain in this case was the important symptom. It never let up, but was more intense at times than others. It was felt most in the ends of the extremities, that is, the hands and feet, and these parts, too, were the most swollen. Pain began as a dull ache, such as is felt in muscular rheumatism, but it gradually grew more intense until I think I can honestly say that I have never seen such continuous and intense suffering in any person. Along with the pain and swelling came local sweating as each limb became involved. Slight touches upon the skin showed hyperesthesia, but firm pressure or any attempt to move the limb was not endured for an instant. Tactile sensation was good. Numbness and tingling in the extremities was one of the earliest symptoms. During the progress of the disease through the limbs there was also complaint of shooting pains along the course of some intercostals and cervical nerves. Pain on deep respiration, with sighing, suggested the involvement of the phrenic nerve.

Motor symptoms were not marked. As the pain and swelling subsided, atrophy of the interossei of the hands and feet was noticeable, with some atrophy of the muscles of the calf. But there was only partial loss of power, evidenced in weakness of the grip of the hand and ability to extend the fingers against resistance. Soon after the pain left her entirely she was able to move herself, raising herself in bed easily and walking from the bed to a sofa near by.

This case, then, was one of the sensory type in which the motor involvement was slight. It is in this class of cases that a favorable prognosis is made unless some complication occurs. The duration of the neuritis was about six weeks, extending to the 1st of April.

The appetite was good and the bowels fairly regular. In fact, it was not difficult to secure a good evacuation from the bowels either by a laxative or enema until the last of the sickness. Even then feces seemed to reach the rectum normally, but were not expelled readily. This I believe was due to the condition of the patient's mind, an enema being expelled almost as soon as given. Involuntary defecation did not occur until towards the last, then, too, only occasionally, and was not the result of paralysis of the sphincter, but was due to her mental condition. The sphincter of the bladder was not involved. Superficial reflexes were normal, the knee jerk lively, but ankle clonus was not present. The pupils, which were somewhat dilated at the start, became more widely dilated as the disease

progressed, but were always round, equal and never lost the power of reacting to light and distance perfectly. The absence of any sign of paralysis of the sphincters of the rectum and bladder, with no other reflex abnormally present or absent, suggests no involvement of the spinal cord.

A cystitis did occur towards the end of the polyneuritis, the urine becoming alkaline and the sediment loaded with bladder cells and polynuclear leucocytes with a very few red blood cells. In a week's time this had all cleared up, and the urine resumed its former state. This condition was evidently a true neuritis of the bladder. There was frequent micturition accompanied by pain, with tenderness over the pubic region. Aside from this temporary condition of the urine, early in the sickness there appeared the slightest possible trace of albumen and a few hyaline casts. At other times fine and coarse granular casts, and occasionally epithelial casts, were found in the sediment, together with some epithelium. This continued throughout the sickness, but with the exception of this week of cystitis no other abnormal elements appeared. A low specific gravity, 1008 to 1012, was noted most of the time. The daily amount was excessive, reaching one day 102 oz. Urea was excreted in normal or very nearly normal amounts, so, also, were the total solids. Toward the end of the sickness the daily quantity decreased, but was usually above 25 oz., and the specific gravity rose to more nearly normal, 1016 to 1020.

The temperature curve rose rapidly after the pain began, and continued elevated throughout the sickness. As each limb became involved, the temperature would rise a little higher and subside as that limb got better, only to rise again as a new limb was affected. When the pain ceased, the temperature approached normal, and ran between 99° and 100°, with an occasional rise for a day or two. This went on until about five days before death, when it rose over 104°, and stayed there most of the time.

The pulse in the beginning was not much elevated, running between 80 and 90. It did not vary much from day to day until the latter part of the course of the neuritis, when it began to run between 90 and 100. After the 1st of April, at which time the neuritis had run its course, and the temperature had begun to drop, the pulse rose higher. A glance at the chart shows that after this there was gradual ascent in the pulse curve, until it became the usual thing to find it between 120 and 160. It was so seldom irregular that that characteristic can be disregarded. The heart showed no sign of disease until the end of the neuritis, when a systolic murmur was heard in the axilla pretty constantly until the end. Owing to hyper-resonance in the chest, no enlargement could be made out.

As tuberculosis is a common complication of polyneuritis, and as in the beginning the temperature was running higher than we expected for an ordinary polyneuritis, we were constantly on the watch for some evidence of tubercular infection. There had been a slight cough without expectoration from the beginning, but repeated examinations revealed nothing abnormal in the lungs. On the 17th of March, five weeks after the neuritis began, and while it was still progressing, she coughed up a mass of broken-down tissue about the size of a

marble. There was some odor to this sputum. During the day she raised some mucus, but none the next day, nor after that for a period of ten days or more, when she again coughed up another such mass of tissue. Three hours after the expectoration of the first mass an examination of the chest revealed the signs of a bronchitis localized to the right of the sternum on a level with the second interspace and third rib. The rest of the lungs showed no sign of disease. The next day these signs were gone, and after that I did not find a râle in the chest. An examination of this sputum revealed a few rods which took the fuchsin stain for tubercle bacilli, and retained it after decolorization. They were, undoubtedly, tubercle bacilli.

I have referred several times to the patient's mental condition, and I will now attempt to describe it although it is not easy. Just previous to the onset of this sickness she had been under a severe nervous strain owing to the sickness of her son. But aside from that, several members of the family had noticed certain things that she had said or done as unlike her. Then in the first of her sickness, before any tenderness or swelling had appeared in the limbs, and while she was complaining mostly of weakness without much pain, she was in a very excitable and rather irritable state. So much so that I, with members of the family, was inclined to regard the case as one of hysteria and to attribute the pain to her imagination. This did not satisfactorily explain the continued rising temperature, and soon we were obliged to give up that idea.

With the advent of such intense pain it was not surprising that she should be nervous, excitable and even irritable, too. But it was not long before the element of fear entered, and she became suspicious that we were going to do something to her. This impression became so firmly fixed that she would cry out on my entering the room and beg me not to do anything to her. Later she became solicitous for the welfare of different members of the family. At one time it was an explosion that was going to injure some one. At another time she was riding on a train and fearing an accident. Soon it became evident that added to the impression of fear was that of noise. She heard various things that were not real. One day when the wind was blowing especially hard she was particularly disturbed because a railroad train was coming through the house, and she wanted every one to get out of the way.

The next hallucination was that of imagining herself in various places. One time it was New York, another, some place in New Jersey, then finally came the idea that she was in a sanatorium, but just where she could not tell. She seldom spoke of herself as being where she really was.

Then came an idea that she was pregnant, and in the course of a week she went through all the events of giving birth to a child. After its birth she kept alluding to it as beside her under the bed clothes, and she was anxious that it should be cared for properly. Later the baby became sick and was taken from her, and this fact distressed her. Finally she concluded that the baby was dead.

I do not mean to imply that as fast as one new delusion appeared the old ones disappeared. Each new one was simply added to those already

existing. It was the last of January when she was first taken sick and the middle of February before she was in much pain. It was the 27th of February that she was moved to her country home, and up to the 20th of March there was no stupidity or inability to understand what was said to her. On the contrary, she was quick to reply, and gave the impression of being on the alert all the time. As the pain increased her suffering of course increased, and she was quiet only when under the influence of large doses of medicine. When the pain had been relieved she often would be extremely nervous, consequently she did not get more than five hours' sleep in the twenty-four, and sometimes less. Morphine was the only drug that could be relied upon to relieve pain, and even then sulphonal, trional, or chloral were given to produce sleep.

Along in the last of March there began to be periods when her crying and distress would become an incoherent muttering. This change was insidious and slow in progressing, but became more marked as the disease in the limbs was subsiding. Her temperature, too, was falling, but the pulse rate was showing a gradual increase. Then, too, she was becoming more noisy. Earlier than this even, she had begun to show that there were some members of the family whom she did not know. Her husband, whom she saw daily, the nurses and me also, she seemed to know. Others, whom she saw less frequently, she often did not know. But even as the mind became more and more cloudy there would be moments when it would be perceptibly clear, and she would talk more intelligently, although still nervous and noisy. Two instances in particular I recall. One was the last time that Dr. Smith saw her. He had seen her several times before, but this last time, when he entered the room, she recognized him immediately and called him by name. This surprised one of the nurses so that she exclaimed, "Why! she knows you." Then, only ten days previous to her death, one morning, as I entered the room, she said, "Good morning, doctor," in the most natural tone that I had heard for a month or more, but before night of that day she was worse than ever.

Looking back on this sickness, one can see how gradually and insidiously this mental trouble progressed from excitability and irritability to hallucinations, to noisy delirium with long periods of comparatively good intelligence, and then to short but increasing periods of stupidity with incoherent mutterings, and finally to almost complete derangement. By the first of April she seemed to be free from pain, or at least pain became an unimportant factor. We felt sure of this because she could be moved about without complaint, and she could move herself also without suffering. Then, too, we were able to dispense with the use of morphine. Bromide had very little effect in quieting her. Hyoscine hydrobromate and duboisine were the most effective, but they had to be repeated frequently. The fever also subsided, as I have already mentioned. Except when under the influence of hyoscine or duboisine she kept up a continuous crying, and at times seemed very wild. The pulse had kept regular and of good strength until the last of the sickness, when it showed signs of irregularity and later,

weakness. An axillary systolic murmur of the heart was also heard. The bowels, which previously had been comfortably moved, now became constipated. Another sign which we considered of bad prognostic significance was the increase in the superficial fat, particularly about the face, neck and chest. She was strong, however, and only a week or ten days before death walked with assistance from her bed to the sofa. The termination of the sickness began by a pretty sharp rise in temperature to 104 and 106. For a few days cold baths and packs with ice caps may have prevented the temperature from rising higher, but they had almost no effect in lowering it. Finally, after four or five days of this continued high temperature, she collapsed, becoming pulseless about two hours before death, while the temperature rose higher until just before she stopped breathing it registered 108.8 and ten minutes after death registered 110. Death came with some profound disturbance of the heat centers. If a meningitis was present there was absolutely no physical sign of it.

RECAPITULATION.

Our attention was first called to the patient by a slight attack of pharyngitis. This was followed by a period of ten days to two weeks of general weakness with freedom from pain, during which time there was also great nervousness. Then came seven weeks of pain, with swelling and tenderness in all four extremities. During this time hallucinations of sight, sound, location and fright were present. This period was followed by a month of freedom from pain, but by steadily increasing cloudiness of the mental faculties. Finally, a period of four to five days of very high fever, terminating in death.

Since the causes of multiple neuritis are many, and, as it would take so much time to eliminate them all, I choose to devote my time to a discussion of several possible causes in this case, merely mentioning some of the others. In a general way it can be said that multiple neuritis is the result of a poison known or unknown. In most of those cases considered neuropathic in origin, there is undoubtedly some other cause associated but not discovered, and it is perhaps safe to assume that the more we search for a cause in individual cases the fewer the number of neuropathic cases will become.

In our case a very large number of causes can be eliminated. Lead and arsenic were not found in the urine, and the course of the disease was not like that commonly seen resulting from those poisons. There was no history of alcoholism in this case, no craving for liquor while sick, and from what we know of her habits we can exclude this as a possible cause. Syphilis also can be excluded, because of the lack of such a history and evidence of the disease in her. The urine did not contain sugar, and there were no other symptoms of diabetes. Exposure to cold acts by itself or in conjunction with some poison like alcohol or rheumatism. It is often the exciting cause in persons who are alcoholic and have been lying out in the cold. If cold alone were the cause it should have been much more intense than anything that entered into my patient's history.

Of the infectious diseases many can be absolutely excluded, not having preceded this neuritis, that is, smallpox, typhoid, beriberi. Malarial history of any definiteness is wanting. The attack at the beginning of this sickness, with a few days' temperature but with no pain, headache or sore throat, is not like the onset of diphtheria, tonsillitis or influenza. The weakness following resembled that after influenza, but there being no sputum to detect bacilli by we must rely on the clinical symptoms for a guide, and I shall exclude influenza on the absence of pain. A culture from the throat was not taken, but diphtheria can be excluded on the absence of membrane in the throat or enlarged glands in the neck. I wish to discuss four possible causes for the polyneuritis in this case, namely, sewer-gas poisoning, rheumatism or gout, a general nervous breakdown and tuberculosis.

SEWER GAS.

Sewer gas certainly was in the house, and no doubt contributed to the very general ill health of the family. It may have contributed also as an exciting cause of the polyneuritis. The temperature, pulse, general nervousness and, in fact, the whole course of the disease was not altered in the least by the removal to her country home, where we knew sewer gas was not present. Gowers says that as soon as the cause of the disease, is removed there is an amelioration of the symptoms. If sewer gas were the sole cause, after removal the temperature should have approached normal and should have stayed there in the absence of a complication. Such was not the case in this instance after it was eliminated as a cause. Finally, in the progress of the disease there developed other symptoms that pointed more strongly to another cause, and I incline to the belief that the sewer gas had very little to do with the case, except in the way of lowering the resistance of the body to attacks of other infectious agents.

RHEUMATISM AND GOUT.

To go into a detailed discussion of what the poisons in these diseases are would require more time than I have at my disposal, and not be profitable to you. A faulty metabolism is probably at the bottom and productive of the irritant that so often leads in these cases to attacks of sciatica, migraine and neuralgias of various sorts. That some of these neuralgias are regarded by some authorities as true inflammations of the nerves or nerve sheaths you all know. Aside from these manifestations the poisons of these diseases are either deposited about the joints or are productive of an increase of fibrous tissue about the joints. Rheumatism more frequently leaves the heart diseased or weakened and gout, the kidney.

If gout had been acquired, or there had been a history of repeated attacks of rheumatism, a person of the age of my patient would be very likely to show some marks of the disease. As regards rheumatism, not while I have been acquainted with her did she ever complain of rheumatism, except to show me the joints of her fingers and say that they sometimes pained her. From neuralgia or headache she was quite free. In fact I believe she had

these symptoms no more than a vast number of people who never have had any suggestion of rheumatism presented to them. There were in the urine, however, signs of a chronic interstitial nephritis. The absence of blood in the sediment, with the increased quantity and low specific gravity, argue against the active congestion of febrile cases, and there were no signs of *passive congestion* in the body. We do not, however, know whether the urine showed any sign of interstitial changes previous to this sickness. Her manner of life had been such that one would not find a cause for kidney changes, unless her first pregnancy could have been a possible originator of a renal inflammation that resulted in the increase of fibrous tissue in the kidney. In her personal history, then, we have a rather indefinite history of neuralgic pain not localized, changes in the joints of her fingers, and a possible chronic interstitial nephritis.

Turning to the family history, I have learned from her father's family physician that there is no history of rheumatism, gout or nephritis in her family. Therefore, while these two diseases cannot be excluded with certainty from the etiology of the polyneuritis, if we can find some other cause for it a much more satisfactory conclusion can be drawn.

Before leaving this subject let me renew my former statement that during most of the sickness the daily amount of urine was above normal and later seldom fell below 25 oz. Estimation of urea and total solids showed a normal, or very nearly normal, elimination of these products of metabolism. Neither were there any convulsions, headache or muscular twitchings to suggest uremia.

Was the polyneuritis a part of a general breakdown of the nervous system, or was there any evidence that this patient was becoming insane and that the polyneuritis developed and hastened that condition?

If this question could be answered in the affirmative then alienation itself would not explain the polyneuritis. Some toxemia must be assured. That the two conditions might develop simultaneously, and that the neuritis might have a decided effect on the mental state, should be accepted. Previous to this illness there had been much sickness in her family for several years which caused her anxiety and worry; and in one coming from a neurotic family it might be argued that *there* was a cause for the development of insanity. If there had been any change in her mental condition previous to this sickness it was in the nature of excitability and irritability, such as might be expected in one of her temperament when subjected to anxiety. That members of the family noticed such changes is certain. We have then a condition that might be precipitated into mental derangement under the proper influence. Such an influence would certainly be presented by the onset of a multiple neuritis.

Have we any evidence during the course of the neuritis which would suggest insanity? I do not feel qualified to decide the question of whether or not the hallucinations accompanying the disease were due wholly to toxemia. Her delirium was not like any delirium I have ever seen as an accompaniment of infectious fevers. And yet there are plenty of instances of the delirium of such fevers

being mistaken for insanity. The important point it seems to me is this: That the mental symptoms persisted and even grew worse after it was plainly evident that the neuritis had run its course. Now mania and dementia are recognized as accompaniments and sequels of polyneuritis and so are chronic meningeal changes. It may be true that such changes are seen more frequently where there is an alcoholic history, but might they not develop from some other condition than alcoholism? Chronic meningeal changes are seen after senile dementia, dementia paralytica and hereditary chorea.

There are, however, certain symptoms in my case that present another side of this question.

TUBERCULOSIS.

The family history is free from this disease. In fact I have never seen many families more completely free from this trouble. During my acquaintance with my patient she had lived under perfect hygienic conditions in the summer, and, had it not been for the sewer gas in the house, her winter life also would have been all that could be desired. There had been no sign of tuberculosis in her previous life, and at the onset of the polyneuritis there was none in the lungs, abdomen, osseous or glandular system, so far as we could detect. That tuberculosis might be the cause of the polyneuritis, while thought of in considering all the causes of this disease was discarded as not at all probable.

But all of a sudden one morning she raised some sputum in a single mass, in which were found tubercle bacilli. This was our first evidence that anything of that nature was complicating the disease. Again within ten days this performance was repeated, and again tubercle bacilli were found. From this time on there was a gradual rise in the pulse rate until 120 or 180 became the usual thing. The irregular temperature still continued and was not characteristic and her mental state became more stupid. A constant watch for signs in the chest elicited nothing but hyper-resonance. There was a slight cyanotic look to the skin when crying and moaning, times when the breath would be held, but when asleep and breathing regularly this cyanosis disappeared. General perspiration too was common.

In the absence of an autopsy upon this case we must agree that we shall never know with any certainty just what did cause death, but the longer I think about this case the more I am inclined to the view that the disease was of tubercular origin from the start.

I feel convinced that the polyneuritis was only a symptom of her disease, and that if it had been the only trouble she ought to have recovered. Everything pointed to a favorable termination so far as the neuritis was concerned.

From the very start we were not satisfied with the high temperature, and removed her from her home to eliminate sewer-gas poisoning. Still the temperature kept up. When the expectoration occurred it is probable that a bronchial gland ruptured into a bronchus and was largely thrown off. With the coughing up of this cheesy mass containing tubercle bacilli there came a change in the case.

Delirium, which previous to *this* had been transient and alert, gradually deepened to stupidity and almost complete lack of intelligence except at short intervals. To be sure, morphine may have influenced the delirium some, but morphine was scarcely used at all during the last four weeks of her life, the time when the stupidity was most marked. Then, too, the pulse rate gradually increased until it was not unusual for it to be above 120. Sweating, which had been local previously, now became general. The temperature continued, though not running as high as during the neuritis. In the "Twentieth Century Practice" is this statement: "Occasionally, too, cases of general miliary tuberculosis run an apyretic course. In such cases, as a rule, the diagnosis is made at the autopsy, the chief symptoms having been of a cerebral character and the patient having been supposed to suffer from mania."

The two most important symptoms lacking against the theory of acute miliary tuberculosis are the preservation of flesh and strength and no dyspnea.

Absence of signs in the lungs which occurred in this case is not uncommon. An examination of the fundus of the eye should have been made, and might have aided in the diagnosis.

In conclusion let me repeat that this patient would have recovered had it not been for a complication like acute mania or because of a fundamental disease. If the latter condition obtained, it is probable that the basal affection was tuberculosis, and that from it was derived the toxine which produced the neuritis. If not tubercular the cause of the neuritis remains undiscovered. Much more might be written upon this case, but I have endeavored to confine myself to as brief a history as possible of a quite protracted illness and to the presentation of a few of the problems that puzzled us during its course.

REMARKS BY DR. GEORGE C. SMITH.

In the light of the foregoing it is very evident that this patient had a multiple neuritis, and that it was merely an expression of, or sequel to, an acute infection of some kind which had existed some time before peripheral neuritis manifested itself. The question of uremic intoxication on the basis of a chronic interstitial nephritis, evidenced thirty years ago, perhaps, in a puerperal fever and lighted up quite recently by some unknown toxine can, I think, be dismissed by virtue of the following facts: Our patient never suffered from headache, nausea, vertigo or neuralgia; she had no hypertrophy of the left ventricle and high tension pulse with accentuation of the aortic 2d; there was no arterio-sclerosis. The polyuria could be accounted for on a nervous basis, hence, although a sclerosis of the kidneys could not be absolutely ruled out, the symptoms referable to the same were so slight as to need no further consideration in this discussion.

The two acute infections which occurred to us in this case as the most probable were influenza and tuberculosis.

In favor of influenza it may be stated that we noted, the season of the year, coupled with the depressing influence of a recent sewer-gas poison-

ing, as a predisposing cause; the mode of onset—a pharyngitis of two days' duration, with chilly sensations accompanied with a slight rise of temperature; the onset of the peripheral neuritis some two weeks after the pharyngitis began, as we so often see it when following an infection, and beginning in the proximal at the same time as the distal parts of the limbs—seemed to accord with a toxemia. Again, the course of the multiple neuritis was not unlike that seen with influenza. The fever and pulse might tally with this affection, and the marked insomnia throughout the disease recalls to mind several other cases of influenza in which this was an obstinate symptom.

Psychoses-euphoria and depression alternated early in our patient, but later gloom and melancholy predominated, with temporary lapses of memory, hallucinations, delusions and even momentary maniacal excitement.

Weber, Felmann and Kraepelin report such symptoms following an attack of influenza, and we have met with two such cases. However, these mental symptoms are not pathognomonic of influenza, but are just as pertinent to the psychoses of other acute infections. The absence of backache and headache in our patient, the long duration of the affection as well as her death, are strong arguments against influenza.

Opposed to acute miliary tuberculosis were her facies, preservation of flesh and strength, the slow pulse and respiration till the last few days, absence of cyanosis, extreme pallor, roseola and enlargement of superficial lymphatic glands, failure of signs of tuberculosis elsewhere in the body, except for a brief period during two days, to be alluded to later.

Leube says that two thirds of the cases of acute miliary tuberculosis affect the cerebral meninges. Our patient had no headache, vomiting or involvement of cranial nerves except that which has been referred to elsewhere.

In favor of acute miliary tuberculosis were the remittent character of the fever; the two slight attacks of cough, which lasted for only about one hour and in both instances were accompanied by the expectoration of cheesy material containing tubercle bacilli, and followed by the crepitant râle, audible over the right bronchus about two inches from the sternum. (No râles were ever heard over the chest before or after this.)

Now when we recall the fact that in pulmonary tuberculosis the right lung is oftener affected than the left, and that the point mentioned—the junction of the right bronchus with a posterior branch—corresponds with the location of a peribronchial gland, the question naturally arises, Was this cheesy focus the origin of the toxine that our patient had suffered with from the first, and was this eruption of caseous material the exciting cause of an acute miliary tuberculosis which rapidly terminated her life, or was it an accident which happened in the course of her disease? For the tubercular theory must also be conceded the obscure and long duration as well as the termination of the affection.

It might be well to state that she never was examined for the only two pathognomonic symptoms of acute miliary tuberculosis; namely, choroid tubercle and blood bacilli.

SUB-DURAL CERVICAL CARCINOMA, SECONDARY TO CARCINOMA OF THE BREAST.

BY E. W. TAYLOR, M.D., AND G. A. WATERMAN, M.D., BOSTON.

From the Department of Neurology, Long Island Hospital.

CARCINOMA of the vertebræ, with subsequent involvement of the cord, is a somewhat frequent complication of cancer of the breast or stomach. The following case derives its interest from the very exceptional mode of invasion of the spinal canal, probably by way of nerve roots, and from the unusual symptoms produced by a growth lying wholly within the dura, and only slightly involving the cord.

M. D., age forty-eight, a widow, by occupation a cook, was admitted to the Long Island Hospital, June 3, 1901. Her father was said to have died at eighty-two with a right-sided hemiplegia; her mother at fifty-five, of renal disease. She had no living children, but had had two miscarriages, each at three months, said to have been from accidental causes. She had had erysipelas five years ago and denied venereal disease.

About two years previous to entrance she began to notice weakness of the left arm, which went on to what she regarded as a paralysis. She had previously noticed prickling sensations in the finger tips. She was, however, able to assist in the house work until three months before entrance, when her left arm became completely helpless. Two weeks before entrance she noticed numbness in the left leg and foot, and soon became unable to walk. Two days before, while making an attempt to walk, she fell and had been in bed since. A ptosis of the left eye was thought to be at least two years old. At no time had there been any definite symptoms of cerebral disorder. Six months previous to coming to the hospital she had noticed that her head was bent forward and that a marked deformity of the chest was developing. These deformities rapidly increased. A "sore" had existed on the left breast for about one year.

Examination on entrance showed the pupils reacting to light and with accommodation, with no paralysis of the ocular muscles beyond a slight ptosis of the left lid and a slight inequality of the pupils, the left being smaller than the right. The knee jerks were lively, more so on the left; there was ankle clonus on the left and a Babinski phenomenon. There was a partial paralysis of the left arm and leg. Sensation was said, at that time, to be good throughout. The tongue was protruded toward the left side. The heart showed no murmurs, but its area could not be marked out, owing to the following deformity of the chest: When standing or sitting in the erect posture, the head and cervical portion of the spine were bent practically at right angles to the lower spine, the curvature being at about the level of the fifth thoracic vertebra; the left shoulder was markedly higher than the right, and there was a decided curvature of the spine to the left at the level of the spine of the scapula; the chest showed a very marked depression with deformity of the sternum; a hard tumor mass involved most of the left breast anteriorly. The heart could be seen pulsating through the chest wall. No râles were heard in the lungs. The areas of the liver and spleen were normal; there was no tenderness nor edema. Glands were easily felt in both axillæ, and the epitrochlear glands were also involved.

While in the hospital the patient had retention of urine, necessitating catheterization. Her appetite was poor; the bowels were irregular, with involuntary movements; sleep was poor, and she grew rapidly worse. The depression at the sternum increased; the right hand became partially paralyzed, the patient being able to make only slight movements with the fingers, but the ability to raise the arm was retained.

On June 27 the following notes were made: Loss of pain sensation in the left arm up to the axilla, with considerable wasting of the muscles of the forearm and hand; general blunting of sensation in both legs, with inability to move them, the left being the more affected.

When stimulated with the prick of a pin, the legs were moved involuntarily. She thought she had had diplopia occasionally, but no disturbance of the ocular muscles was found. There was occasional regurgitation of food, which was probably due to mechanical obstruction. This, as well as difficulty in breathing, was increased while sitting up. There was considerable motor weakness of the right arm, with a fair preservation of sensation. In this condition the patient died the following day, June 28.

Autopsy by Dr. G. B. Magrath, June 29, 1901, eighteen hours after death. There was a marked depression at about the level of the fourth rib in the median line. A large tumor mass extending from the median line to the left nipple showed a scar of 5 cm. in diameter, with a certain amount of excoriation. At the fourth and fifth thoracic vertebrae there was a very marked kyphosis, with erosion of one vertebra and involvements of others, with alterations in the intervertebral discs. The left forearm and hand showed a certain amount of muscular atrophy. The brain weighed 1,260 gms., and was apparently normal, with normal vessels at the base. The internal organs in general showed nothing of significance beyond a certain amount of atelectasis of the lungs from chronic bronchitis. The spinal cord showed macroscopically a thickening of the dura in the region of the cervical enlargement, but appeared otherwise normal.

The autopsy confirmed the diagnosis made during life of cancer of the breast with erosion of the sternum and vertebrae and involvement of the spinal cord in the cervical region, although the character of the cord involvement was wholly unsuspected.

Microscopic examination.—Examination of the breast tumor showed it to be a carcinoma of the scirrhus type. Sections were made from the spinal cord in several regions, and stained by Weigert's myeline sheath method, Van Gieson's hematoxylin-picric-acid fuchsin, by hematein-eosin, and by Nissl's method. In the upper thoracic and lower cervical region the dura on the dorsal aspect of the cord was very markedly thickened (Fig. 1), and at certain points continuous with the pia. This thickening was due to an actual invasion of the membranes by the



FIG. 1. Cervical cord, showing sub-dural thickening due to infiltration with carcinoma cells.

proliferating epithelial cells of the carcinoma; the condition might properly be called a cervical carcinomatous pachymeningitis in the same sense that that term is used of syphilis. The carcinoma cells showed a perfectly typical arrangement in nests, the connective tissue of the dura forming in great part the stroma. Ventrally and laterally the dura showed a similar involvement, but somewhat less in degree. The nerve-roots, both dorsal and ventral, were involved in the carcinomatous growth. This was especially marked in the dorsal roots, the individual nerve bundles of which were in some instances

invaded by the proliferating cells (Fig. 2). At various

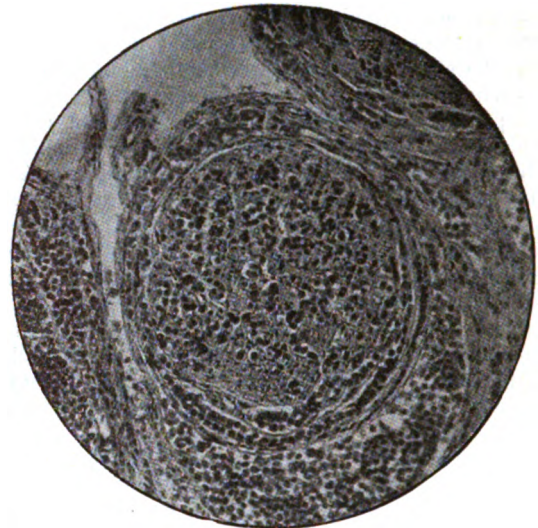


FIG. 2. Dorsal nerve-root; deeply staining nuclei belong to carcinoma cells; general infiltration of nerve-root; destruction of myelinated sheaths and axones.

levels studied a similar invasion of the dorsolateral portion of the cord was apparent. This invasion of the cancer cells appeared to follow the neuroglia septa, and frequently was definitely associated with the perivascular spaces (Fig. 3). These strands of cells extended inward

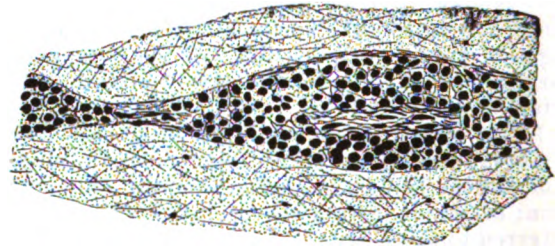


FIG. 3. Mode of infiltration of carcinoma cells about blood vessel in the cord. Semi-diagrammatic.

at places about half way to the gray matter, and were made up of cells wholly similar to the cancer cells found in the dura. At the point where these septa extended into the cord, the dura, pia and substance of the cord were continuous. At the level of the lesion, the nerve-roots, stained by Weigert, showed an extreme degree of degeneration, somewhat more marked dorsally than ventrally. There was a slight descending degeneration of the pyramidal tracts, visible in the lumbar region. Ventral horn cells showed no pathological alteration. No other lesions of the cord were noted. It is worthy of remark that the tumor of the cord was very much more cellular than that of the breast, to be classified as the so-called medullary type.

The clinical history of this case in the light of the autopsy is of much interest. About two years before her death the patient had observed both sensory and motor disturbances in the left arm, which in the course of twenty-one months progressed to a practically complete motor paralysis. This was later followed by similar disturbances in the left leg, with a final involvement of the right arm and leg, but to a much less marked degree. The beginning of these cord symptoms antedated the discovery of the breast tumor one year, though it is not to be supposed that the tumor of the breast was actually

of so recent growth. It is altogether probable that the carcinomatous thickening of the dura was secondary to the growth in the breast. The condition found in the dura, which has been already described, was certainly of long standing and slow growth, as shown by the motor and sensory cord symptoms which had existed, in some measure, upwards of two years. The destruction of nerve-roots by the invasion of cancer cells (Fig. 1) was quite sufficient to explain the very marked disorder of function beginning in the left arm. The actual invasion of the lateral tracts of the cord by the cancer no doubt explains the degeneration of the pyramidal tracts, which was extremely slight, and the consequent increase of the knee reflexes with a Babinski phenomenon on the left. The severity of the cord symptoms, and particularly the final paralysis of the legs with involvement of the sphincters, are, however, out of proportion to the lesions discovered in and about the cord. It is possible that a constriction of the cord by the kyphosis which escaped observation post-mortem may have been causative of the almost complete motor and sensory disability shortly preceding death. Clinically the appearance was of a high transverse lesion of the cord, which the autopsy proved to be a wholly erroneous assumption.

A more probable explanation of the loss of power in the legs is that the pressure exerted by the new growth, although largely external to the cord, was sufficient to lead to the symptoms observed shortly before death. There is sufficient analogy for such a loss of function below a point of pressure in certain meningeal affections of the cord, of which Pott's disease is an example, in which, when conditions of pressure are removed, a resumption of function on the part of the cord demonstrates no permanent destructive lesion. It is also worth noting in this case that the flow of cerebrospinal fluid in the subdural space of the cord must have been, in great measure, interrupted by the encircling tumor.

The occurrence of cancer of the spinal canal as an internal pachymeningitis, if that term may be allowed, is of much pathological interest. The dura externally, both ventrally and dorsally, presented a perfectly smooth and normal surface. External to the dura there was no evidence of a gross destructive or proliferative lesion, such as tuberculosis presents, for example. The thickening brought about by the extensive invasion of cancer cells in the cervical region was wholly internal, and in gross appearance was strongly suggestive of the conditions seen in syphilis or other recognized forms of cervical pachymeningitis. In view of the fact that carcinoma invading the cord is usually a highly destructive lesion, leading to symptoms of transverse lesion, the findings in this case are noteworthy. In a patient, for example, recently observed by one of us, symptoms of almost total transverse lesion of the cord, secondary to a breast cancer, developed in a period of a few weeks. This must be regarded as the ordinary course of events. In the case here reported, on the other hand, symptoms persisted for upwards of two years of a character which could not in themselves have led to a correct diagnosis of the cord affection.

It is also worth mention that the patient at no time suffered from the excruciating pains which are

supposed to accompany involvement of the nerve-roots by a tumor. In this case the sensory disorders were of the nature of somewhat mild preliminary paresthesia with final anesthesia. This is difficult of explanation, but the fact is of value as showing that the absence of pain should not preclude the diagnosis of subdural cord tumor.

The points of importance in this case are:—

(1) A growth of long standing in the immediate neighborhood, but with slight involvement of the cord.

(2) Limitation of the new growth essentially to the sub-dural space.

(3) Extensive motor and sensory paralyses from involvement of nerve-roots alone.

(4) Absence of pain attributable to invasion of sensory roots.

Clinical Department.

A CASE OF PNEUMONIA WITH RELAPSE.

BY A. LAWRENCE MASON, M.D.

Visiting Physician, Boston City Hospital.

C. M. F., a young woman of good family history, entered the City Hospital, Oct. 30, 1902, with pneumonia. It was stated that she had had measles with pneumonia eight months before, losing twenty pounds in weight. Three months later a child had been born at term, and she had not been strong since.

Present illness.—Two days before entrance she had prolonged chill, headache, dyspnea, pain in the right side, cough, vomiting and diarrhea. Sputa dark and adhesive.

At the time of admission the signs of pneumonia were well developed in the right lower and middle lobes; namely, dullness, bronchial respiration and bronchophony, increased tactile fremitus, abundant high-pitched râles and a friction rub.

The heart was weak, with a blowing systolic murmur at the apex and a soft diastolic murmur at the base. Cyanosis was marked. Pneumococci were present in the sputa. The blood showed 28,000 whites.

Urine, 1,025; albumen; a few hyaline and granular casts and renal cells. Diazo reaction present on sixth day, absent seventeenth day.

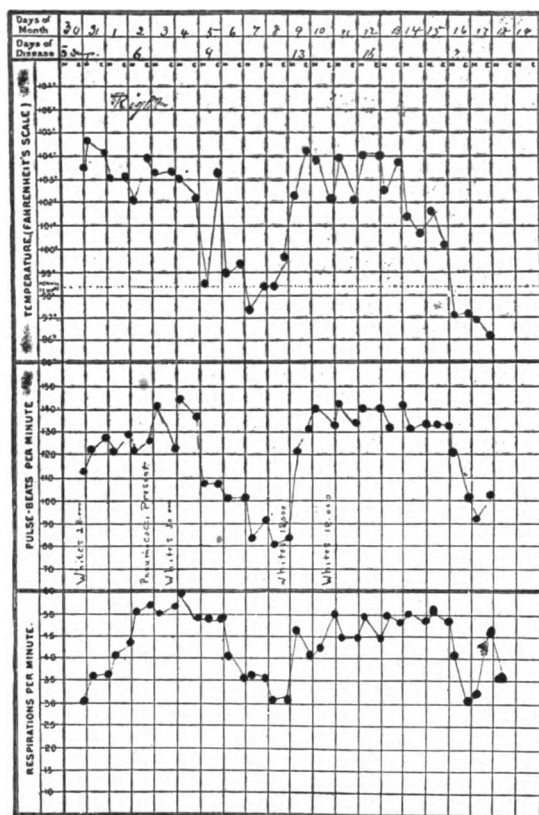
The disease ran a severe and dangerous course until the ninth day; when there was a pseudo-crisis followed by crisis on the tenth day.

On the tenth, eleventh and twelfth days she became hungry, slept well and presented all the signs of convalescence, the pulse and temperature remaining normal for two days. This interval enabled her to regain enough strength to carry her through the relapse to follow.

Relapse.—On the thirteenth day the symptoms and physical signs of pneumonia developed in the opposite lung, the left upper lobe being the seat of a new inflammatory process, while the right lung was resolving favorably. This relapse was also characterized by great severity, as the chart shows, and convalescence did not begin until the twentieth day. Resolution progressed rather slowly after the second crisis; there was a good deal of

vital depression for some days with a sub-normal temperature, but recovery was uneventful; twenty-eighth day, 14,000 whites.

Remarks.—Ordinarily a completed crisis in pneumonia appears to convey immunity for the time being at least, although subsequent attacks not infrequently may occur after a longer or shorter



interval. In typhoid fever, on the other hand, relapses are common, second attacks few.

Regarding the frequency of relapse in pneumonia there is considerable variance between the statements of different writers, and many of the best authors pass over this subject with little or no reference. Although rather technical, still it has interest from the clinical point of view, and was investigated by Grissolle and Briquet among the earlier writers, later by Wunderlich, Ziemssen, Flint, Wilson Fox, Osler and others.

From the small number of cases mentioned, however, it may be inferred that this incident has been found to be a rare one when proper discriminations have been made between true relapse and those other not uncommon conditions which delay convalescence in pneumonia. Often the process extends to a second or a third lobe during the active stage of the disease. Delayed resolution is a frequent source of recrudescence. Secondary pleurisy, pericarditis or empyema may add new dangers. But these conditions are quite apart from the one now under consideration.

In my own experience I can recall but two or three instances of relapse in pneumonia, and the one

now reported is the most typical and striking. All recovered.

For many years I regarded the dictum of Flint as absolutely correct. He says: "A relapse never takes place." This is so far true that the exceptions may be considered to prove the rule.

The records of the Boston City Hospital show that relapse is an uncommon event. Sears and Larrabee,² in an analysis of 949 cases of pneumonia, admitted between 1895 and 1900, found but 8 cases, or less than one per cent. Two of these died, one from exhaustion two days after the second crisis.

A FORM OF PRESSURE ANEMIA OF THE UVULA WHICH MAY BE MISTAKEN FOR MEMBRANE.

BY W. P. COUES, M.D., BOSTON.

THIS condition of the uvula has come to my notice in several cases of severe throat infection when the tonsils have become greatly swollen, so that one or both impinge on the side of the uvula, almost blocking up the throat.

On gently separating the tonsil from the uvula a white spot is seen, which may, in a hasty examination, particularly if diphtheria is suspected, be mistaken for membrane.

Continued pressure of the tonsil on this spot may even cut off the circulation from that part of the uvula and lead to a superficial necrosis.

On more careful examination it will be seen (1) that the white spot is formed at exactly the point of impact of the tonsil and uvula; (2) it is not raised above the surface, and (3) it does not bleed when touched.

This condition occurs generally, I believe, in streptococcus infection of the throat, when a non-diphtheritic membrane is perfectly possible.

ANTISEPSIS OF THE CLINICAL THERMOMETER.

BY WILLIAM H. DEVINE, M.D., BOSTON, MASS.

IN these days of antiseptic, when the profession is devoting so much time to the detail of antiseptic methods, it has often occurred to me that too little attention is paid to that important instrument, the clinical thermometer. It presents great opportunities for conveying germs, and while the surgeon may carry out a perfect technique for his surgical antiseptic, his results may be impaired by neglecting this germ carrier. Owing to its fragile nature it cannot be sterilized by heat, like most surgical instruments.

In hospitals, or at our offices, facilities are offered for cleansing, by immersing the thermometer in a vessel containing carbolic or other solution, immediately after using, this being the ideal treatment.

The busy general practitioner can adopt the same method, but it necessitates carrying the antiseptic agent with him and preparing it on every call, which is inconvenient and impracticable. I think the usual method employed in active practice is to thoroughly cleanse the instrument, before and after using, in cold water, preferably a running stream or in soap and water.

¹ Flint's Practice of Medicine, Fifth edition, p. 178.
² Med. and Surg. Reports, B. C. H., 1901.

When the price of thermometers has been much reduced, most of our patients will have their own thermometers; this will render the care much easier than if one be used for different patients. But even in those ideal days, the practitioner will always have his transient patients who do not possess such an article, and some practical method is necessary to keep the thermometer as near surgically clean as possible.

Not much, to my knowledge, has been written on this subject in standard text-books. Perhaps the importance of cleansing the instrument is so evident to physicians that it may be the reason why so little is written pertaining to it. In consulting several standard modern surgical works, in only one did I find mention of this subject, and then but three lines were devoted to the matter. In another work, about fifty pages were given to an admirable monograph on antiseptics, but no reference made to the thermometer; yet this instrument plays an important part in the care of the surgical as well as the medical patient.

It seems to me that the best method to keep the thermometer free from germs is to copy the hospital method of placing it, while not in use, in an antiseptic solution; this necessitates carrying the agent used.

It is not practicable to carry antiseptic solutions except in a thermometer case. I have found from experience that alcohol is the best basis for the antiseptic agent. For several months I carried the case filled with alcohol; before and after using the thermometer, it was washed in cold water, preferably running water from faucet, and after use placed in alcohol in the case.

For the past two years, I have used corrosive sublimate, and alcohol 1-5000. The only objection to alcohol is the odor; but this objection is overcome to some extent by flavoring the solution with *ol. gaultheriæ* (one drop to four ounces of solution is sufficient). If the thermometer is carefully handled, no alcohol being spilled, there will be no perceptible odor.

The bichloride solution is not as suitable for metallic cases as it is for the ordinary hard rubber, but may be used. Alcohol with some suitable antiseptic that has no effect on the metal, such as a solution of thymol, soda salicylate and alcohol of required antiseptic strength, is preferable.

The objection to plain alcohol is its doubtful efficacy as an antiseptic. I have had an ordinary cheap thermometer immersed in 1-5000 bichloride in absolute alcohol, in a hard rubber case, several weeks at a time, and found no appreciable effect on markings of the thermometer. It may in time impair the markings on glass, but as yet I have had no difficulty in this direction.

The solution has apparently no injurious effect on the hard rubber case. No doubt the strength of corrosive sublimate could be increased to 1-2000. Possibly alcohol increases the antiseptic effect of corrosive. I do not consider the other antiseptic agents, as I deem this the best for the purpose. Alcohol if spilled on the clothing dries quickly; it is so volatile that the odor rapidly disappears. It has no special injurious effect on ordinary fabrics, which cannot be said of carbolic, permanganate and other ordinary antiseptics. When convenient,

other antiseptics may be used to supplement the solution for cleansing the thermometer before and after use, and the thermometer should at least be cleansed in clear cold water before and after using. Solution in the thermometer case should be changed quite frequently.

The antiseptic effect of bichloride is so well known that we need not discuss its qualities as compared with other antiseptic agents. The "United States Dispensary," the eighteenth edition, says that "corrosive sublimate is one of the most powerful of known germicides, a solution of one part of it in twenty thousand of water being sufficient to kill micrococci and bacilli in active growth; whilst a solution of one thousand will rapidly destroy bacterial spores. According to Koch, as little as one part of corrosive sublimate in three hundred thousand of a proteid solution will prevent the generation of the spores of the bacillus of anthrax."

The temperature should never be taken by mouth in diphtheria, syphilis, pulmonary tuberculosis, typhoid and many other contagious cases unless the most rigid antiseptics be employed; in fact, I think the temperature should never be taken by mouth or rectum unless one is sure that the thermometer is practically sterile. I have never known of disease being transmitted by the thermometer, but transmission of disease from unclean thermometers is within the range of possibility. While I do not claim that the method advocated procures thorough sterilization, I think it is far safer than the ordinary method used.

To sum up, I would say that the practical methods of eliminating transmission of disease by thermometer are:

- (1) Separate instrument for each patient.
- (2) The hospital method of keeping the thermometer immersed in antiseptic solution, when not in use.
- (3) Keeping in the thermometer case a solution of bichloride and alcohol (1-5000 to 1-2000).

Medical Progress.

REPORT OF PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D., BOSTON.

PARAFFIN INJECTIONS.

DURING the past year the subcutaneous injection of paraffin to correct deformities, especially of the nasal bridge, has been several times reported. Great care must be taken to secure a perfectly aseptic mixture of fats and to inject it at a proper temperature. If too fluid there is danger of fat embolism. In one case a portion of the injected fat reached the upper eyelid, and was removed with difficulty; this can be prevented by firm pressure at the root of the nose. A number of cases are reported by Harmon Smith,¹ with the suggestions and precautions which he has formulated. It is absolutely essential to have the paraffin melt at a sufficiently low temperature to ensure ready injection. A special paraffin designed for these injections melts at 110° F., and is

¹ Med. Rev. of Rev., Sept. 25.

furnished in test tubes sealed and sterilized. The possible dangers are: infection, embolism and deformity from hyper-injection, with inability to reduce the quantity of injected paraffin, or with pressure necrosis. The paraffin, in a closed tin receptacle, is placed in a hot-water boiler and boiled. It is allowed to cool to about 115° F. and drawn up into a specially devised syringe which may be sterilized in the same water bath with the paraffin; a screw force exerted on the piston rod is sufficient to force the paraffin out even at a temperature of 90° F. No expedition at all is necessary, as the paraffin may remain in the syringe at the temperature of the room and then be ejected without difficulty. When the paraffin is semi-solid it winds out from the needle in a thin cylindrical thread, but with sufficient force to uplift any tissue not held down by fibrous adhesions. In injecting in this way ample time is allowed for molding and smoothing the injected paraffin, and the danger of hyper-injection is minimized. The paraffin becomes so intimately imbedded in the meshes of the connective tissue that it is almost impossible to remove it without also removing considerable tissue. No peculiar sensation has been experienced by the patients, except that a sense of numbness immediately follows the operation. The needle is introduced away from the point of greatest deformity and its point is carried forward slightly beyond this, being gradually withdrawn as the injection is made. As the pressure is felt beneath the fingers, molding and smoothing the surface begins. This should be continued throughout the operation, thus preventing the paraffin collecting in lumps, giving rise to an irregular surface. Ice cloths are applied for twelve to twenty-four hours, according to the amount of edematous swelling and inflammation which may immediately follow.

OZENA.

Up to the present time all theories on the etiology of ozena have been more universally criticised than accepted; neither has any treatment been brought forward which has established a place for itself. Grünwald² maintains that in most cases, if not in all, the cause is to be sought in some suppurating focus. The secretion is almost always fluid to begin with, generally inoffensive when fresh, but it may become dry from mechanical causes, the more frequent of which are a stickiness due to infection by the bacillus mucosus and an abnormally large nasal cavity. The atrophy, if there is anything more than lack of development, he considers due to infection and pressure by the crusts. The odor arises from putrefaction. In a general review of the subject of ozena, Barth³ points out that supuration, especially in the accessory cavities, is usually found in adults, ozena in youth, and in the latter condition the patient is not aware of the characteristic odor, whereas in the former the opposite holds good. Brieger and Bosworth believe ozena to be the result of purulent rhinitis. Chauveau believes it to be a neuropathic degeneration, but this is more likely to be a result than a cause. E. Fränkel, Hajek, etc., have proved that the bacillus mucosus is accidental and has no etiologic

ical significance. Zaufal declares that the cause of ozena is a rudimentary development of the inferior turbinate; as a result there is a loss in normal secretion and a lessening of its bactericidal power. The noses of cultivated people are usually well formed and narrow; those of negroes and European children wide and flat. In the latter case the type changes towards adult age, except in cases of ozena, where we have an arrest of development.

In regard to treatment, the first indication is the cleansing of the nose. Inserting foreign bodies, the use of diphtheritic serum, thyroid gland substance and electrolysis have all been tried, with but temporary benefit. An ingenious application of paraffin has been reported by Richard Lake, who injected paraffin submucously, thus making an artificial turbinate, by which the extreme breadth of the nasal cavity was reduced. Five minims were injected at weekly intervals, leading to a marked improvement in the local appearance and subjective symptoms.

AN OPERATION FOR THE CORRECTION OF DEFLECTED SEPTUM.

The operations introduced in recent years for the correction of deflected nasal septum may be classed under the heads of crushing, flap and resection. A method under the latter head has been developed by Kyle,⁴ which consists in removing a V-shaped piece, or a number of V-shaped pieces, not only from the cartilaginous, but also from the bony septum. In this way the redundant tissue is removed and the resiliency is broken. In order not to endanger the blood supply the incisions should be parallel with each other, and the V-shaped pieces removed should not include the mucous membrane of the opposite side. In certain deflections where the redundancy is excessive, a large V-shaped piece must be removed. While in nearly all cases it is necessary to make more than one incision, it is rarely necessary to make more than two V-shaped cuts. The other incisions in the septum should be made with the thin saw merely to lessen the resiliency and permit its being easily molded into shape. The length of the cut will depend entirely upon the extent of the deflection. This is also true of the V-shaped piece to be removed. A sufficient number of incisions should be made and sufficient tissue removed to allow the septum to be placed in line and supported there by means of the nasal tube.

There should be no pressure from this tube, as it acts merely as a support.

An instrument devised by Fetterolf⁵ often simplifies and shortens the operation very much. The instrument comprises the elements of both a saw and a file. The edge is curved and consists of a series of teeth, half of which cut when the instrument is pushed and the other half when it is pulled. With a finger in the concave side to act as guide, either one or two grooves are cut through the septum as far as the perichondrium of the opposite side. After the grooves are satisfactorily made, the Adams forceps is introduced and pushed to the floor of the nose. The lower fragment of the septum is broken from its basal attachment and twisted

¹ Archiv. f. Laryngol. u. Rhinol., xiii, 2.
² Fortschritt. der Med., No. 33.

⁴ Laryngoscope, August, 1902.
⁵ Amer. Med., March 1.

toward the opposite side. The other segments are then pushed over, and if two cuts have been made a slight amount of pressure with the finger will be sufficient. The operation is finished by the introduction of a tube.

THE IMMUNIZATION TREATMENT OF HAY FEVER.

Two years ago the ingenious attempt to establish an immunity against the irritating pollen of ragweed by previous internal administration of a decoction of the plant was suggested by Curtis and used by him in a few cases. In order to give this method of treatment a careful trial, Ingals⁶ gave to twenty patients who were sufferers from autumnal catarrh a combination of equal portions of a fluid extract of ragweed and of golden rod. The patients were directed to take a dose of the mixture about ten minutes before each meal and one at bedtime. The first dose was two minims, each succeeding dose was two minims larger, until an adult patient had reached the maximum dose of twenty minims of the combined fluid extracts. They were directed to continue for a week or two, providing it acted favorably. Then if no symptoms of the disease were present it was to be discontinued, but it was to be taken again upon the reappearance of any symptoms. A mixture containing resorcin and adrenalin as a spray was also prescribed. Eighteen patients thus treated reported the results as they had observed them. Of these, twelve believed that they were relieved by the internal remedies. In several cases as the symptoms subsided the medicine was discontinued, whereupon the symptoms reappeared, but again speedily disappeared upon recommencing the use of the medicine. Eleven were subject to asthma during the attack, and half of these reported benefit or entire relief from the asthmatic symptoms. The preparations used were hurriedly obtained, and the best method of giving them unknown, consequently the value of the method is as yet uncertain.

NERVES OF THE MUCOUS MEMBRANE IN CASES OF NASAL NEUROSES.

In two cases of marked nasal reflex neuroses Lewy⁷ found in the mucous membrane of the lower turbinate an extraordinarily large number of rather thick nerve filaments, just under the surface. The comparison of this mucous membrane with that from the same place in normal subjects was very striking. In both these cases the mucous membrane was removed because it was swollen, and in both the reflex disturbances were much relieved by the removal.

FIBROID TUMORS OF THE NASO-PHARYNX.

A proper description and classification of these tumors is uncommon in our textbooks of laryngology as well as of surgery. They are confounded with retro-nasal mucous polypi, which grow from the nasal fossæ into the pharynx, and with sarcomata. In an excellent paper on tumors of the nasopharynx, Quinlan⁸ separates and describes these

fibroids. The tumor is generally described as originating from the basilar process of the sphenoid, the upper cervical vertebræ, or the internal plate of the pterygoid process. While histologically benign, they are clinically malignant, from the tendency to recur. They tend to afflict youthful males. Their broad area of insertion is responsible for the numerous radical operations devised for their extirpation as well as the many methods of attacking them through the natural passages.

There is another type of naso-pharyngeal fibroid which agrees with the preceding in originating from the base of the skull and affecting young males by preference, but which differs from it in becoming stationary after a certain size is attained. The use of the term angioma is to be condemned; for while differences exist in the vascularity of fibroids, a true angioma in this locality is not recognized by pathologists. The procedures for the removal of these typical growths must all be regarded as merely palliative operations until it can be shown that recurrence has not taken place over a given period. The ultimate termination of these cases with or without treatment is seldom described.

These tumors are distinguished by unusual firmness of texture and breadth of attachment and from the fact that they stand in no definite relationship with the nasal fossæ. They need not originate from the base of the skull, for they have been observed to grow from the vertical column, pterygoid fossa, and in fact from all of the osseous structures which are in proximity to the naso-pharynx, save those which make up the nasal fossæ themselves. For their removal the forceps is now often distrusted by reason of the frequency with which accidents follow its use; the same is true of the hot snare. The cold snare has stood the test of time better than any other resource. Certain growths are, of course, beyond its reach. Typical fibromata may often be removed by simple snaring, while growths which are intrinsically much less formidable are sometimes unapproachable by this means.

THE FUNCTION OF THE PHARYNGEAL TONSIL.

The belief seems to be not uncommon that a pharyngeal tonsil large enough to be felt with the finger should necessarily be removed and that the presence of an "adenoid" implies a pathological condition. This is largely due to the fact that as yet no well-defined function of the lymphatic ring of Waldeyer has been discovered and that an abnormal condition of the ring, or parts of it, is a frequent source of disturbance. Brieger,⁹ in an exhaustive article, concludes that an enlarged pharyngeal tonsil is not of itself a pathological process. We do not find other lymphatic apparatus, such as the lymphatic glands, constant in number and size; they increase and decrease with the needs of the organism. The maximum development of the pharyngeal tonsil is found at the time of life when there is the greatest need of protection against bacterial infection. On the other hand, this increase in size, which in itself may be designed for protection, is often not only a mechanical obstruction, but it may be the cause of pathological processes. The pharyngeal tonsil disappears physiologically at an age

⁶ Journ. Amer. Med. Assoc., June 28.

⁷ Archiv. f. Laryngol. u. Rhinol., xii, 1.

⁸ Laryngoscope, November, 1902.

⁹ Fränkel's Archiv., Bd. xii, Hft. 2.

in which a certain immunity from diseases of childhood is established. From a therapeutic standpoint the removal of a pharyngeal tonsil for sufficient reasons should not be abandoned, because under normal conditions it has a protective function. The rest of the lymphatic ring will carry on the function. Also, as is shown by Goerke,¹⁰ there is in time a regeneration of glandular tissue, which under certain circumstances may be considerable, even after thorough removal of the adenoid. It should be emphasized that a large pharyngeal tonsil is not in itself sufficient cause for operation but any disturbance which can justly be considered due to the enlargement may demand its removal.

KERATOSIS OF THE PHARYNX.

Until recently the direct cause of the condition known as pharyngo-mycosis was supposed to be the growth of the *leptothrix buccalis*. During the last few years there is an increasing amount of evidence that the primary condition is a keratosis occurring especially in the different parts of the glandular ring of Waldeyer. This subject has been studied and well reviewed by Richardson.¹¹

The growth is most abundant on or about the tonsils or at the base of the tongue. It occurs most frequently in young robust adults without any constitutional disorders. Usually the condition is observed by the patient or his friends in an accidental examination of the throat. There is no febrile reaction nor disturbance of the general system. An interesting feature of the disease is its tendency to undergo spontaneous resolution, which occurs at periods varying from a few months to several years. Siebenmann showed the mass to be made up of a central narrow lumen, containing bacteria, detritus and mucus, surrounded by an epithelial wall, composed partially of layers of hardened, unnucleated epithelial cells, and partly of a homogeneous horny substance. On the other surface of the quills which projected from the crypts were bundles of *leptothrix*. He states that the process is an unusually intense cornification of the lacunar epithelium, which terminates in quill formation. Keratosis of the tonsillar crypts, in a mild form, is not an unusual but rather a common condition, the presence of the *leptothrix* is an incidental one, and bears no relation as a causative factor, as it is present in every mouth and is usually deposited where the epithelial cells are thickest. On account of the discovery of sub-epithelial buds, the absolute demonstration of the epithelial formation of the quills showing only the manifestation of the spores on the outer surface, Siebenmann considers his case clearly demonstrated and desires that the name of the condition be changed to that of hyper-keratosis lacunaris. Several observers agree that there is a keratosis of the faucial and pharyngeal mucous membrane in the condition which is commonly known as pharyngo-mycosis. It is probable that the manifest changes begin in the sub-epithelial structures. The facts so far adduced, while they clarify the atmosphere somewhat as to the condition of keratosis, have not been of much material aid as to the etiology of this condition.

¹⁰ Ibid.

¹¹ Trans. Amer. Laryngol. Assoc., 1902.

THERAPEUTICS OF LARYNGEAL TUBERCULOSIS.

In a series of lectures at the London Post Graduate College, Lake¹² covers in detail the subject of laryngeal tuberculosis. Under the head of medical treatment for the local disease he describes the remedies which he has found of use. The application of cocaine previous to the use of pigments should not be continued longer than is absolutely necessary. A weak solution, such as a mixture of cocaine and eucaine, each 10%, will satisfy all requirements. The most generally known of all pigments is lactic acid, in any strength from 5% upwards. It is recommended that 20% be used for the first few days, and that the percentage be rapidly increased, — every third day an increase of 10%. The indication that one has exceeded the limit of tolerance will be shown by an increase of edema in the larynx or the presence of edema. The only other fluid remedy of value is formalin. For general purposes it is better to commence with 1% and to proceed cautiously up to 10%, the limit of tolerance being shown by the same manifestations as in the case of lactic acid. The pain is more intense but of much shorter duration than that from lactic acid, and patients who have been treated with both give the preference to formalin. A combination of formalin and lactic acid has the advantages of both, and is superior to either used separately. The formula recommended is formalin 7%, lactic acid 50%, glycerine 20%, and water to 100%. With all solutions of formalin, whether in combination or otherwise, a relatively fresh preparation is necessary, formalin vapor being rapidly given off. Insufflations of powders are useful for home treatment. Iodoform, chinisol and paraform are remedial agents, orthoform is a local anesthetic. The author prefers 50% of paraform and 50% of orthoform. If one uses iodoform or chinisol it is sufficient to add only 25% of orthoform. For tuberculous trouble below the cords, and in the majority of cases of the cords themselves, no treatment has yielded such satisfactory results as that of injections into the trachea. The temperature of the injection should be about 90° F. The amount injected is immaterial, but should not be less than $\frac{1}{4}$ oz. In a large number of cases cocaine will be required. Any coal tar oil may be used, to this may be added 3% of naphthalin and $\frac{1}{4}$ % of oil of cinnamon. When there is swelling of the arytenoids and epiglottis, with or without ulceration of the false cords and of the inter-arytenoid region, one should confine the treatment entirely to frictions of the part with one or other of the pigments suggested. But if the ulceration is deep, or if the swelling of the false cords is of that form which points to perichondritis, paints should only be used as an adjunct to operative treatment.

THE CRICO-THYROID MUSCLE.

Barth,¹³ in a treatise on the function of the crico-thyroid muscle, concludes that this muscle in contracting generally pulls upward the cricoid and trachea. This can only take place if the thyroid cartilage is fixed, and this cartilage can only be fixed by simultaneous fixation of the hyoid bone.

¹² Journ. of Laryngol., Rhinol. and Otol., February, 1902.

¹³ Archiv. f. Laryngol., xlii, 2.

If the muscles which hold the hyoid bone are relaxed the crico-thyroid draws the thyroid cartilage downwards to the anterior rim of the cricoid, and at the same time the hyoid bone is drawn forward. This movement enlarges the diameter of the hypo-pharynx and the space between the base of the tongue and the palate, and increases the volume and resonance of the voice. When the muscles holding the hyoid bone are relaxed there is less muscular effort needed for the production of sound.

BRONCHOSCOPY.

Recent advance in this subject is to be credited to Killian and to Eicken, assistant in his clinic in Freiburg. The latter reports in detail the removal of a collar button from a point deep in the left bronchus.¹⁴

Two attempts were made through the natural passages. In the first it was found that the insertion of the bronchoscope into the left bronchus shut off the air from the right lung. In the second attempt this was avoided by fenestrating the speculum. The foreign body could be seen but could not be seized. At the third operation the trachea was opened and the button easily removed with the aid of the short tracheoscope. In this case the foreign body had been in the bronchus four and a half months, the left lung was seriously affected and the patient failing. After its removal the patient finally entirely recovered. It is improbable that this button could have been reached in any other way. After being seen it would have been very difficult to seize it without the instruments at hand, which had been suggested by practice with the manikin. This manikin or model of the air passages was designed and recommended by Killian as an important supplement to the instruments for bronchoscopy, so that the surgeon may learn the technique of the operation in advance. Bronchoscopy through the larynx is necessarily a difficult matter, and is not applicable to all cases. Through a tracheal wound the foreign body has in most reported cases been easily seen, but as it may be friable or slippery it is not always easily seized, therefore a variety of grasping instruments should be at hand. This is the first case in which bronchoscopy has been attempted through the larynx in an adult under general anesthesia, although it has been successfully done with children. In addition to general anesthesia which must be deep, cocaine must be applied to the larynx and bronchi to prevent reflex cough. For removal through a tracheal opening a general anesthetic is often not required.

Reports of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

ANNUAL MEETING, Jan. 12, 1903, the president, ANDREW H. SMITH, M.D., in the chair.

DR. WILLIAM H. THOMSON read a paper on the

TREATMENT OF UREMIA.

He began by saying that correct physiology is an essential prerequisite of correct pathology. Path-

ology may be said to be physiology under difficulties, but it is physiology still. We must understand normal processes before we can hope to deal successfully with abnormal conditions. There is no organ, he went on to say, in regard to which so many undetermined questions confront us as the kidney. There are unsolved problems not only concerning renal disease, but also as regards the actual working of the organ in health. Experimental pathology has here presented to us a curious paradox: the more you remove of the kidneys, the more, apparently, will they excrete. Bradford found in dogs that if two thirds of both kidneys were cut away the animals got on very well, and that they passed both more urine and more urea than before the operation. If, however, three fourths of the kidneys were removed, they lived for some time, though dying eventually. But as long as they survived there were marked polyuria and increased excretion of urea, the muscles disintegrating into urea, and so passing off by the kidney. It would, therefore, seem as if a small part were greater than the whole. In explanation of the polyuria it is claimed that the glomeruli of the kidney are capable of draining off the entire serum of the blood, and would do so if the fluid were not reabsorbed. In cirrhotic kidney there is almost always considerable polyuria, and this is explained by the destruction of an extensive surface for absorption.

The increased excretion of urea when only one fourth of the kidney is left presents a more difficult problem. This is supposed to point to an unknown function of the kidney, by virtue of which the organ not only excretes urea, but regulates the production of the latter. Again, it would seem as if the excretion connected with inorganic substances is a much simpler matter than as regards the organic. But scores of animals have been sacrificed to find out why it is that the chlorides disappear from the urine in pneumonia, typhoid fever and other febrile diseases. Having referred to the experiments of Cushing, Sollmann and others, Dr. Thomson said that some writers had advised that in typhoid fever a large quantity of sodium chloride should be added to the patient's milk, and others a small amount, while still others thought there was no use whatever in giving any salt at all. There is a diversity of opinion, and as physiology is at fault, pathology must be more or less uncertain.

Clinical experience, however, certainly does furnish us with considerable definite information, so that the special conditions present in different diseases of the kidney can be recognized. To illustrate: Instances occur in which persons apparently in good health suddenly find that they cannot pass a drop of urine. Here there is obstructive suppression, and the cases are peculiar and distinctive. Some time ago he was called in consultation to see a healthy-looking German who had not passed a drop of water for eight days. The man was sitting up and quite comfortable. Except that he felt weak he said he would not know that he was ill. The attending physician, when first called eight days before, had used a catheter, without result, and he stated that the only thing abnormal he noticed about the patient was that the pupils were somewhat contracted. The pulse was not espe-

¹⁴ Beiträge zur klin. Chir., xxxiv.

cially tense and there was no headache or any other of the ordinary symptoms which might have been expected in such a case. On inquiring into the previous history, it was found that thirteen years before, the patient, who had been a great drinker of beer, had been attacked with severe pain in the left flank and with high fever, which lasted for three weeks. Soon afterward he found that he could not pass his water. The pain he described as of exactly the same character as that which preceded the present suppression, the latter being situated, however, on the right side. The explanation was that this was one of the rare cases of obstructive suppression. The only hope for the patient was to operate immediately, cutting down upon the ureter, which was unquestionably choked by a calculus. From the history it was evident that the left kidney had been obliterated by an obstructive stone or stones, thirteen years before, so that he had only one kidney left. The attending physician asked why symptoms of uremia were not present, and Dr. Thomson told him that unless an operation was performed the patient would die without a symptom. Death would result from asthenia, and there might perhaps be a little twitching of the muscles, but nothing more. The operation was declined, and two days afterward the man died in the manner he had described — by his strength giving out. Here there was no clinical history of the kind attributable to uremia. In the latter the condition is wholly unlike that seen in cases where the urine has been suddenly and totally suppressed. They differ as much as morphine poisoning differs from atropine poisoning.

A careful study of uremia suggests the presence of more than one poison to produce the different symptoms noted, each having its peculiar and characteristic effects. Having referred to choline and neurine (the latter being much the more virulent of the two), he said that in the case of uremic poisoning he thought there was one toxin which could be specially recognized by certain special symptoms. To illustrate its manner of action he related the case of a lady, sixty-two years of age, whom he saw in consultation with Dr. Alexander Travis. When rising from the table on one occasion, she was seized with a faint feeling, and fell to the floor. After being placed in bed she suffered from great restlessness and from headache, and was unable to raise her head without experiencing vertigo. An examination of the urine showed a little albumin and the presence of fatty and hyaline casts. She had a high tension pulse, and the heart was extremely weak. The first sound was muffled and the second sound accentrated, while the left ventricle area of dullness was increased in size. There, then, was a dilated and much enfeebled organ. Heart stimulants of every variety were administered, and also sodium iodide in small doses, but without any beneficial results, and at the end of two months the patient seemed to be losing ground. She had a considerable amount of gastro-intestinal disturbance, and suffered from a feeling of numbness. An offensive odor was also exhaled from her body. The daily output of urea was only 120 gr. or about 8 gm.

She was then placed upon tincture of aconite, five drops every three hours continuously. At the time

that this was commenced the patient could not be turned in bed without great distress, but in a few days her improvement was very perceptible. The daily output of urea soon rose to 480 gr., and the character of the heart's action became very much better. Within a week she sat up in bed (supported by a bed-rack) for ten minutes. The aconite was kept up for six months, during which time she continued to improve; and once she drove twenty-five miles. Twice during that period the aconite was reduced, but each time there was a return of the previous symptoms. At the end of the six months the nitrites were used in place of aconite for one month, erythrol tetranitrate being selected as having a more prolonged action than nitroglycerin. She began to fail again, however, and the output of urea went down to 150 gr. Accordingly, the aconite was resumed, and again the heart action improved, while the daily amount of urea excreted increased to 450 gr. At the end of four months more the remedy was discontinued, and, under a carefully regulated mode of life, the patient has since steadily improved.

In a large number of cases of kidney disease there can scarcely be a question that there is circulating in the blood a specific poison which is identical with the natural secretion of the suprarenal glands. The result of its action is that the heart hypertrophies, then dilates and then fails. According to Dr. Thomson's observation, aconite is by far the most valuable of all remedies for dilating arterioles. For this purpose it is superior to the nitrites, whose operation (even that of erythrol tetranitrate) is very evanescent. On the other hand, aconite is certain to exert its full effect, and this generally lasts about three hours. In this case he believed the heart was dilating and failing simply from overwork against the general arterial contraction.

It was his opinion that it was a similar or identical poison with which we were confronted in some great emergency, such as puerperal convulsions. There is, however, another element; namely, violent action on the part of the heart from excessive high tension in the arteries. In health there is a beautiful mechanism by which, whenever the tension rises, the vagus is stimulated to slow the heart; but in convulsions the inhibitory function of the vagus is completely unbalanced. Should this continue, the intra-cranial pressure becomes so great that a *status epilepticus* sets in. Undoubtedly one of the best remedies for this condition of affairs is venesection. If bleeding is objected to, veratrum viride may be employed as a substitute for this, and it should be given according to the symptoms present and the effect produced, and not simply in regulation doses. In cases of this kind aconite is too slow in its action, and it does not have the desired effect on the splanchnic area. Of veratrum viride it has been remarked that it bleeds the patient into her own veins.

The pathology of puerperal convulsions has been the subject of much speculation. By some it is claimed that in normal pregnancy there is always an increased secretion of the thyroid gland, and that in the cases in which this does not occur convulsions are likely to result, as the condition which leads to the production of eclampsia is due to a deficient thyroid secretion. Dr. Thomson said he did

not incline to this view, for the reason that we have the same phenomena sometimes presented in alcoholism in males. As an instance of this he mentioned a case which he had seen in consultation with the late Dr. Pallen. The patient had taken an enormous quantity of brandy within twenty-four hours, and for ten hours had been in convulsions. When seen he was comatose. The tongue was bitten, and the status epilepticus was extreme, while the pulse was of the same character as that met with in puerperal eclampsia. Bleeding was advised, but as this was deemed objectionable, 20 drops of tincture of *viratrum viride* were given every fifteen minutes, so that in four hours $2\frac{1}{2}$ dr. had been taken. The effect of the drug was watched very carefully, however, and the case ended in recovery.

In speaking of the effects of the arterial ischemia he said that in puerperal and alcoholic convulsions, due to the presence of a toxin, one thing was very noticeable — the difference between the cyanosis met with and ordinary cyanosis. In the latter the blueness of the surface is dependent upon universal congestion of the vessels, while here it is due to enlargement of large veins. There are a number of conditions of high arterial tension in which aconite must be given with considerable caution. In arteritis obliterans no vaso-dilator can be of much use; therefore when we have senile heart with rigid arteries such agents should be given only under special circumstances. Thus, if the pulse is rapid, as well as of high tension, aconite may be administered until the pulse comes down to 80, when it should be discontinued. He alluded here to a very common class of cases which are characterized by diminution of urea elimination, and yet in which we should never think of giving aconite; cases in which the patients complain of a great variety of symptoms which are extremely puzzling.

Two illustrative cases were described. One was that of an elderly gentleman who nine months before coming under observation began to lose weight. He suffered from a tingling in the legs below the knee, vertigo and a species of hypochondriasis, and insomnia which was followed by overpowering drowsiness. The other was that of an army officer who, during the Cuban campaign, had malarial fever, with colitis. Later, in Ecuador, he had an attack of rheumatism. He had delirium and was comatose for two weeks. For six weeks afterwards he suffered from headache and a continuance of general rheumatic symptoms. Dr. Thomson's experience has taught him that when a great variety of anonymous nervous symptoms are complained of, especially in men, it may generally be safely concluded that there is present a toxemia of either gastro-intestinal or renal origin. The daily output of urea should therefore always be investigated in such cases. In one of these patients the urea excreted, instead of amounting to from 25 to 30 gm., was barely 18 gm., and in the other, only 15 gm. These cases are very common. In both the patients referred to the pulse was weak and of high tension, but in other respects their symptoms were totally unlike. Within six months both men had successfully passed an examination for life insurance. Such cases are quite common, and are nearly always of gastro-intestinal origin. They occur also in women, but in them this trouble is generally pro-

nounced to be hysteria. Yet he believed in many instances renal inadequacy was present.

In speaking of acute nephritis he said that the typical form of the affection was the scarlatinal. Here are met the same kind of anomalies as in the chronic disease. There is no relation whatever between the severity of the scarlet fever and that of the nephritis, so that the lightest cases of fever may be followed by the most grave kidney disease. Nor does the desquamation apparently have anything to do with the nephritis. There is not much that can be done in the way of prophylaxis, though the oiling of the skin may perhaps do some good. When nephritis has developed, the first danger signal is to be found in a diminution in the excretion of urea and a fall in the specific gravity of the urine. These occur before any albumin or casts make their appearance. When nephritis has once declared itself the treatment ought to be very energetic. Dr. Thomson believes that the most certain of all diuretics is the thorough douching of the rectum with three gallons or more of hot normal saline solution (at a temperature of 115° F.). For this purpose Dr. Robert C. Kemp's rectal irrigating apparatus will be found very satisfactory. There seems to be a very close association between the kidneys and the bowels, so that the evacuation of the latter is almost invariably accompanied by the voiding of urine, even if the bladder has been emptied but a short time before. In scarlatina probably the best prophylaxis against both severe fever and nephritis is a nightly dose of calomel. He did not think we need ever despair of a case of scarlatinal nephritis, and mentioned one in which recovery took place after the patient had actually been pronounced dead. The treatment was commenced by touching the skin in the region of the kidneys with table-spoons taken out of boiling water, after the method suggested by Brown-Séquard, and on the seventh application the child opened its eyes.

In chronic interstitial nephritis the occurrence of uremic convulsions is not infrequently the first announcement that the patient is the subject of Bright's disease. On the other hand, many individuals who are known to be suffering from this affection get along very comfortably for a considerable length of time, when suddenly very serious developments take place. This sudden change in the course of the disease is undoubtedly due to the introduction of a new element; namely, the invasion of the kidneys by one or more forms of bacteria, especially the colon bacillus. Having had polyuria for months, they find themselves passing but little water, and then none at all; the condition being virtually the same as in acute scarlatinal nephritis with suppression. It is on this account that Dr. Thomson always dreads attacks of so-called cholera morbus in elderly persons. In cases characterized by such symptoms as mental cloudiness, uremic asthma and Cheyne-Stokes breathing, he has often been able to ward off trouble by securing free action of the bowels, followed by diuresis. For these purposes he gives a calomel cathartic, and afterwards 10 gr. of urotropin, with 10 gr. of sodium benzoate every two or three hours. He has never seen any bad results from urotropin when thus associated with the sodium salt.

The prognosis of interstitial nephritis is always

uncertain, as we can never feel sure how much working kidney the patient has left. The diet is a matter of great importance. The quantity of highly nitrogenous food consumed, especially red meats, must be limited. In health the kidneys after a hearty meal excrete more urea than usual. There appears to be normally a balance in the system, so that an increased intake of food is offset by an increased excretion of urea. If the kidneys are diseased, however, this balance is interfered with, and thus it is that we so frequently find attacks of apoplexy following upon Christmas and Thanksgiving dinners. Another thing that must be taken into account is the different state of affairs at different hours of the day. In all cases of Graves' disease, and often in melancholia and various other affections, the patients are worse in the morning, while the first attack of gout or of peptic asthma often occurs after midnight. In regulating the mode of life of those past middle age who have rigid arteries and a high-tension pulse, it should be advised to avoid hearty meals at night.

He thought it unfortunate that two such different affections as chronic parenchymatous nephritis and chronic interstitial nephritis should go by the common name of Bright's disease, as he did not know of any two diseases affecting the same organ which differed so greatly. While the former occurs more frequently in the young than the old, and often in children, chronic interstitial nephritis is almost invariably met with in middle and advanced life. In the interstitial form of renal disease the albumin in the urine is small in quantity, and not infrequently absent, and constitutes an insignificant feature, while in the parenchymatous it is constant and abundant. In the one the patient is never waterlogged, except when the dropsy is due to cardiac complications, while in the other such a condition is a striking and marked characteristic; so that the two classes of patients present a totally different general appearance.

As diverse as the clinical phenomena observed are the pathological changes in the kidneys themselves. In the large white kidney the capsule can be stripped off as readily as the peel of an orange, while in the small, contracted kidney the capsule becomes so firmly adherent as to appear to form a part of the tissue of the organ. In parenchymatous nephritis the glomeruli are squeezed and pressed together, and the tubules are clogged with an accumulation of debris of all kinds. While we do not understand just how the dropsy accompanying this condition is produced, we readily appreciate that we have here found a blocking up which bears all the marks of a mechanical obstruction capable of neutralizing all our therapeutic endeavors. What we seem to lack in the kidney is a double blood current, such as is met with in the lungs. In this organ we have the renal artery, and that alone, and it therefore appears to be the part of the physician to invoke the aid of the surgeon to try to establish here a means, such as is provided by nature in the lungs, and is of such great practical service, for carrying away the products of inflammation. Through the method of Dr. Edebohl's we seem to have a mechanical means for accomplishing this, the agency of the peripheral arteries of the kidney being by it brought to the assistance of the embarrassed circulation of

the organ. This operation would appear to be of extreme value if it proves as serviceable in its practical application as it is admirable in theory. Hitherto the treatment of chronic parenchymatous nephritis has remained one of the most disappointing in the whole realm of medicine. While we can call upon the skin and the bowels to act vicariously for the kidneys, we find, after all, that we do not make much headway. Some cases get well, it is true, but whether through our efforts or of themselves, we can hardly say. As to the production of albuminuria, one observation by Overbach is certainly very suggestive. The simple clamping of the renal arteries in dogs for forty minutes was followed by albuminuria, which lasted for twenty days. The pressure effects of an inter-cellular exudation upon the glomeruli would seem to induce virtually the same condition, an arterial ischemia, and thus explain the albuminuria which is present. In the amyloid kidney there is a mechanical interference from another source, but which acts in the same way as the inflammatory exudation. Finally, we find that however diverse the various diseases of the kidney may be in their pathological features and clinical history, in the end they tend to converge, all alike producing one common result, uremic poisoning.

Recent Literature.

A Text-Book of Anatomy. By American Authors. Edited by FREDERIC HENRY GERRISH, M.D., Professor of Anatomy in the Medical School of Maine, Bowdoin College. Second edition, thoroughly revised and enlarged. In one imperial octavo volume of 948 pages, with 1,003 engravings in black and colors. Philadelphia and New York: Lea Brothers & Co., Publishers. 1902.

This book, which at once came into popular favor, has reached a second edition in about two years. In view of the fact that there was no positive need of a new anatomical text-book of this size and general character, it is the more remarkable that this should so soon have established a place for itself as a rival of its older and eminently trustworthy companion—Gray. The reasons for its popularity apparently lie in the facts that it is written in a concise fashion, omits a quantity of details which have no practical bearing on the everyday work of the surgeon or physician, and that it is admirably printed and sumptuously illustrated. It is therefore readable, easy for purposes of reference, and makes an appeal to the reason through the eye, which is always a valuable attribute of a book of this sort. In other words, it admirably fulfils the purpose for which it is designed as an aid to elementary students of anatomy, whether undergraduates or practising physicians. It is in no sense to be regarded as a contribution to anatomical science, as such. Certain changes and additions have been made in this edition, tending toward the simplification of the study of anatomical facts, among the most noteworthy of which is the representation on the bones of muscle attachments.

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PROPOSED SANITARY LEGISLATION IN MASSACHUSETTS.

THE annual grist of legislative bills, submitted to the General Court of Massachusetts for its consideration, culminated in the last week of January with an avalanche of new propositions, good, bad and indifferent.

In recent years almost every new legislator goes up to Beacon Hill with the notion that his mission is not accomplished until he can call himself the father of some new statute. There is also a large army of faddists, old and new, some with philanthropic and some with mercenary schemes, clamoring for legislation, some of which is of the most impracticable sort, while a few measures are of real value. To separate the wheat from the chaff will occupy the remaining months of the legislative session.

First upon the list comes House Document No. 87, to prevent cruelty to animals. This is plainly another attempt of the anti-vivisectionists to secure legislation, an additional inducement being inserted in the shape of a clause exempting the State Board of Health from the action of the law.

No. 111 is the Report of the State Board of Agriculture upon production of vaccine lymph at the Massachusetts Agricultural College. This proposition only needs full and free discussion to show its absurdity.

No. 134 is a bill to provide medical examiners for the public schools. It requires that "in every city and town there shall be one or two doctors of medicine, graduates of some reputable medical school, who shall serve as medical examiners, and shall examine the school children as often as the school committee shall direct."

This bill was drawn with good intent, but needs revision, since there are at least fifty small towns

in which there is no physician, and it is difficult to see how such a measure could be made to apply to them. It is, however, practicable to secure legislation which would make the excellent plan which Dr. Durgin inaugurated in Boston several years ago a legal requirement in all our cities and larger towns.

No. 167, introduced by a well-known Boston druggist, appears to be intended to secure "the highest comfort and safety in anesthesia." It provides that "any one giving an anesthetic in such a manner as to interfere with the uniform, natural supply of fresh air, with each inspiration of the anesthetic, shall be held responsible for any ill results attending such use."

John N. McClintock appears to be the father of a bill (No. 268) "to deprive the State Board of Health of authority to approve land for sewage disposal."

House Bill No. 316 introduces a proposed act to regulate plumbing, and give the State Board of Health power to appoint a committee to attend to the matter.

No. 329 is a bill to give power to the State Board of Health to produce and to distribute anti-toxin and vaccine lymph.

No. 332 is a bill to regulate the sale of oleomargarine and renovated butter, as if this much-abused but good and wholesome article of food was not already hedged about by a sufficiency of laws and of officials. There are already in the city of Boston four different sets of officials having power to enforce oleomargarine laws, namely, the United States Revenue officials, the inspectors of the State Board of Health, the inspectors of the Dairy Bureau and the city milk inspector. Such redundancy of legislation is inspired more by the interests of a few producers than of the multitude of consumers.

House Bill No. 425 is entitled a bill to establish a Department of Food and Drug Inspection under the State Board of Health. Reading between the lines, however, the last section appears to provide for the abolition of the Dairy Bureau.

Bill No. 485 provides for the marking of carcasses and the inspection of certain domestic animals.

No. 486 is another bill resulting from the perennial baking-powder war.

No. 487 provides for the expenses of small-pox patients in cities and towns, a subject in regard to which there has been occasion for lively discussion during the past year. It limits the expenses payable for the care of such patients to \$35 per week.

No. 514 provides for raising the age of persons

to whom the sale of cigarettes is forbidden, from sixteen to twenty-one years.

No. 695 requires the State Board of Health to investigate the dumping of garbage into the harbors and along the seacoast of the State.

No. 696 provides for the ventilation of theaters and places of execution of the law in charge of the State Police.

By the provisions of Bill No. 697, its introducer would prohibit the use of slot-machines, on account of their supposed tendency to spread disease.

Nos. 698, 699, 700 have for their object to repeal the vaccination laws, "to prevent persons from being vaccinated against their will," and to provide compensation for injury caused by vaccination.

No. 701 provides for the keeping of records in all cases of smallpox and of vaccination. Records of smallpox are already provided for, but there is no legal requirement for records of vaccination, and herein our legislation is decidedly lacking. Such records are required everywhere in civilized European countries, and constitute a fund of information which is exceedingly valuable.

No. 702 provides for the labeling of poisonous cosmetics. Bills have also been introduced in the Senate as follows: Senate No. 45, to require the removal of old wall paper in tenement houses before new paper is applied. No. 64 establishes a board of embalming examiners. No. 103 is intended to require persons intending to take ice from new sources to be licensed by the State and local boards of health.

TWO BOSTON CITY HOSPITAL PUBLICATIONS.

THE thirteenth series of the "Medical and Surgical Reports" of the Boston City Hospital has recently appeared, under the editorship of Drs. H. L. Burrell, W. T. Councilman and C. F. Withington. This publication has, no doubt, become familiar to a wide circle of readers during its existence, which is now considerably more than a decade. There has been no falling off in the character of the papers presented, and each new series offers contributions of positive theoretical and clinical value. The subject of bone anomalies has gained a new interest since the practical application of the x-ray, a fact of which Dr. F. B. Lund takes excellent advantage in his paper on "Congenital Anomalies of the Phalanges Studied by Skiagraphy." Crandon's investigation on the "Prostate" and Monk's and Blake's paper on the "Normal Appendix" should be widely read, and a large number of clinical and pathological papers

all have a more than usual interest. In general, this number of the "Reports," like many of its predecessors, is a good example of what a hospital can do through its medical staff toward making positive additions to medical knowledge as well as caring for the sick. It is always a matter of regret that contributions of this character should not be readily obtainable as a volume.

The thirty-eighth annual report of the hospital from Feb. 1, 1901, to Jan. 31, 1902, which has also recently appeared, is a volume of 216 pages, containing many facts and statistics which are of interest as indicating the extent to which this great municipal charity has grown. The report of the South Department shows that although this part of the hospital was originally intended for 240 patients, the actual number during the past year has ranged for continuous months from 146 to 318, and 209 applicants were rejected during the year because of the overcrowded condition of the wards. Measles, for example, it has at times not been possible to treat at the hospital, on account of lack of space. It is certainly desirable that further accommodation should be provided for these infectious diseases. As soon as patients with such diseases are thrown back upon the community in any number, the object for which the South Department exists is defeated. The trustees urge that an additional building for the treatment of measles be constructed.

The most notable addition to the buildings of the hospital during the year was the Relief Station in Haymarket Square, which was completed, and is now in active service. The report is, as usual, largely taken up with medical and surgical statistics, which are classified with evident care by a fixed system, and therefore are of positive though of necessity somewhat uncertain value. It is at any rate a satisfaction to see the increasing care which this and other large hospitals are taking to render their statistics practically serviceable. One method of accomplishing this result is to have a fixed system of classification, which does not admit of individual caprice. Such a classification the City Hospital has apparently adopted.

NEW YORK STATE MORTALITY STATISTICS FOR 1902.

THE mortality bulletin for 1902 of the State Department of Health, issued Feb. 1, gives some interesting statistics. The congested districts do not show such a greatly increased mortality over rural districts as is generally supposed. This may be seen in the following table:

Districts.	Urban Death-rate.	Rural Death-rate.	Death-rate for District
Maritime	18.7	18.5	18.6
Hudson Valley.....	18.0	15.0	16.5
Adirondack & Northern	15.0	12.0	13.5
Mohawk Valley	19.0	13.5	16.25
Southern Tier	15.0	13.0	14.01
East Central	14.0	14.0	14.0
West Central.....	15.5	13.0	14.25
Lake Ontario & West'n	14.6	13.5	14.0
Entire State	17.5	15.5	16.5

In the Maritime District, which includes the city of New York, the population is 1,728 to the square mile; in the Lake Ontario and Western, the second most populous, it is 200 to the square mile, and in the Adirondack and Northern, the least populous, 26 to the square mile. The total number of deaths was 5,753 less than in 1901, and the death-rate for the entire State 1% less. The greatest decrease was in the winter months, though the midsummer mortality was also unusually low. The number of deaths among infants and young children was 31,215, which was 4,560 less than in 1901, and 4,820 below the average for the five years previous. The old age mortality (seventy years and upward) decreased from 22,233 in 1901 to 20,700 for 1902, the average for the five years previous being 20,050. While the Maritime District is the least healthful for the infant, it shows very markedly the best results for age. In it the percentage of deaths in persons of seventy years and over was only 10, while in the eight other districts the percentage was, respectively, 22.5, 29, 26.5, 31, 30, 35.5, 22.5 and 17. The percentage of deaths under five years of age was, in the Maritime District, 34.8, and in the others, respectively, 19.5, 16.7, 21, 17, 16.5, 13.3, 23.8 and 25.3. The Maritime District naturally leads in mortality from zymotic, diarrheal and acute respiratory diseases, as well as from pulmonary tuberculosis. In the entire State the number of deaths from acute respiratory diseases (the largest from any one class of affections) was 16,986; those from diseases of the nervous system (the second largest), 12,964, and those from diseases of the circulatory system (the third largest), 12,889. The total number of deaths from pulmonary tuberculosis was 12,582. There were 7,058 deaths from accident and violence, 4,990 from cancer and 4,949 from simple old age. The latter number is 635 below the average for five years. The largest number of deaths from croup, diphtheria, diseases of the circulatory system and acute respiratory diseases occurred in the month of January; from measles, in February; from pulmonary tuberculosis and puerperal diseases, in March; from diseases of the nervous system, in April; from scarlet fever, in May; from whooping cough and from accidents and violence, in July; from diarrheal diseases, in

August; from old age, in September; from typhoid fever, in October, and from cancer, in November.

The last annual report of the New York Association for Improving the Condition of the Poor shows the continued and increased success of the plan inaugurated a few years ago of providing for as many of the city's foundlings as possible, either by securing their adoption or by paying for their care in trustworthy families. The number of infants thus cared for has been gradually increased, and the figures presented are as gratifying as they are remarkable. Four years ago, it is stated, nearly six died out of every ten at the Infants' Hospital on Randall's Island, from which the children were taken. At first the infants were already weakened by institutional life, and in 1899 nearly 55.9% of those boarded in families died. During the next two years this percentage was reduced successively to 31.1 and 18.9, and in 1902 it was only 10.7, a rate actually lower for the foundlings than for all infants and young children in Manhattan.

A TYPHOID EPIDEMIC AT ITHACA, N. Y.

It is reliably reported that typhoid fever has appeared in Ithaca, N. Y., and has spread to such a degree that there is at present an epidemic of about four hundred cases, and this out of a population of 13,000 people. Such a statement seems wholly out of accord with the present state of medical and sanitary progress. Ten or fifteen years ago we should have regarded an occurrence of this sort with a certain amount of equanimity, but now with the exactitude of our knowledge regarding the means of transmission and spread of the disease, it seems almost incredible that an epidemic of this size should arise in any civilized community, conversant with ordinary hygienic laws. When we consider further that Ithaca is a city of exceptional intelligence, that it harbors a university, which in turn supports a medical school, and that the source of infection apparently is a polluted water supply, it is hard to be lenient in our judgment. Certainly there is no possible excuse for such carelessness as an outbreak of typhoid fever implies. No doubt the blame will be shifted from person to person or from one city department to another, but the fact remains that some one is to blame who should be held strictly responsible. It has come to be almost an aphorism that a typhoid epidemic is a crime committed by some person or persons to whom censure or punishment should be meted out in proportion to the degree of their criminal negligence. The community certainly has the right to make such a demand.

MEDICAL NOTES.

RECOVERY FROM GUN-SHOT WOUND OF THE HEART.—A patient who had recovered from a gun-shot wound of the heart was presented by Drs. H. L. Niebert and L. Rassieur, at the last meeting of the St. Louis Medical Society of City Hospital Alumni, and the case reported.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Feb. 11, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 34, scarlatina 27, typhoid fever 8, measles 11, smallpox 5.

NEWTON HOSPITAL.—At the meeting of the Newton Hospital recently held, Mr. J. R. Leeson was again chosen president of the Board of Trustees. The report made at the meeting showed the hospital to be in a flourishing condition and to have had a satisfactory year, during which 824 patients had been cared for.

ANNUAL MEETING OF THE MASSACHUSETTS GENERAL HOSPITAL.—At the annual meeting of the Massachusetts General Hospital recently held, the following officers were elected: Charles H. Dalton, president; Francis C. Lowell, vice-president; Franklin Haven, treasurer; Thomas B. Hall, secretary; Francis H. Appleton, Francis Blake, Charles H. W. Foster, Francis L. Higginson, Nathaniel Thayer, Henry P. Walcott, George Wigglesworth and Moses Williams, trustees on the part of the hospital. Governor Bates appoints four trustees to represent the State on the board.

BOSTON CITY HOSPITAL ALUMNI ASSOCIATION.—This association, composed of physicians who have graduated as house officers at the Boston City Hospital and containing now about 300 members, held its annual meeting and dinner at the Somerset Hotel, Tuesday evening, Feb. 10. One hundred and twenty-five members were present. The following officers were elected: Charles P. Bancroft, M.D., Concord, N. H., president; Chauncy C. Sheldon, M.D., Lynn, Mass., vice-president; William H. Robey, M.D., Boston, secretary; William H. Prescott, M.D., Boston, treasurer. Eighteen new members and 72 associate members were elected.

Dr. Henry R. Stedman presided, and presented the following speakers: H. H. Sprague, Esq., a trustee, W. H. Sayward, Esq., Dr. George B. Shattuck, Dr. C. Ellery Stedman, Dr. C. F. Withington, Dr. J. W. Courtney and Dr. C. P. Bancroft. Dr. H. R. Stedman and Dr. Bancroft made a plea for the establishment of a ward for the acute psychoses

in connection with this general hospital. The occasion was regarded as a particularly successful and agreeable one.

NEW YORK.

WARRANTIES IN LIFE INSURANCE POLICIES.—The Third Appellate Division of the New York Supreme Court has decided, in an action against the Metropolitan Life Insurance Company, to recover on a life policy, that where such a policy makes the application for insurance a part of the contract and the answers by the insured to the medical examiner are warranted to be true, a false answer, even though immaterial, will make the policy void. On the trial, testimony was introduced which tended to show that the insured falsely stated that he had had no medical attendance since childhood. A physician was called, however, who testified that he had professionally treated the deceased for several years to the date of the policy. The trial court left it to the jury to say that if they found that this physician had attended the insured, whether that was a material fact or a breach of the warranty. A judgment for the plaintiff (the wife of the deceased), on a verdict in her favor, has been reversed, the Appellate Court holding that the trial justice, in charging as he did, committed a manifest error. In the course of his opinion Justice Parker, speaking for the court, said: "Assuming, as we must, that the statements so made by the deceased were warranties, and not mere representations, it was not within the province of the jury to determine whether they were or were not material; nor was there any question for a jury as to whether, if any such statements were untrue, there was or was not a breach of the warranty contained in the contract." He also said that "whether or not such statements were warranties within the terms of the contract, was a question of law for the court."

A ROCKEFELLER LABORATORY.—It is stated that Mr. Rockefeller has recently made a large special donation for the establishment of a laboratory in New York in connection with the Rockefeller Institute for Medical Research, and that a formal announcement concerning it will shortly be made by Dr. L. Emmett Holt, the secretary of the Institute.

TENEMENT HOUSE LEGISLATION.—At the New York Academy of Medicine on Feb. 5, Dr. S. A. Knopf read a paper on "The Care and Treatment of Consumptives at Their Homes, and the Urgent Need of Local Sanatoria," in the course of which he said: "In Manhattan there are 200,000 and in Brooklyn 125,000 interior rooms without a vestige of light or ventilation. Every one of them constitutes a menace to the public health, and yet an at-

tempt is now being made to induce the legislature to aid greedy contractors to erect tenements without light or air—veritable breeding places for consumption. If they succeed, then every one concerned should receive the just condemnation of every citizen in the land.” Dr. Knopf introduced a resolution which was adopted, deploring any weakening of the present tenement house laws and urgently requesting the legislature to permit no changes to be made that will in any way decrease the amount of light and air available for the people living in such houses, or in any way to take a backward step in regard to their sanitary condition. Among those who spoke on this occasion were Drs. E. G. Janeway, H. M. Briggs, H. P. Loomis, Alfred Meyer and Beverly Robinson. Resolutions were also adopted which criticised the legislature for its delay in appropriating funds for the State sanatorium in the Adirondacks, and the city authorities for failing to bring the proper pressure to bear on the legislature.

TYPHOID AT ITHACA.—On Feb. 7 it was reported that 400 cases of typhoid fever existed in Ithaca, N. Y., and that the disease was still spreading. An analysis by Professor Charnot of Cornell University is said to have shown contamination of the drinking water.

BUBONIC PLAGUE.—The three seamen who were under treatment in the Swinburne Island Hospital for bubonic plague have all been discharged cured, and no other cases of the disease occurred among the members of the crew who were detained for observation. On Feb. 2 a resolution was adopted by the State Assembly calling upon the State commissioner of health to report to it the part taken by him in the recent conference at Washington and the plans adopted or proposed to be adopted to prevent the introduction of bubonic plague into the State of New York.

MORTALITY IN NEW YORK CITY.—The mortality in the city in the month of January represented an annual death-rate of 19.32, against 17.48 in December and 20.37 in January, 1902. The corrected death-rate, excluding non-residents and infants under one week old, was 18.31. Among the diseases which showed an increase in fatality were the following: The weekly average of deaths from diphtheria and croup increased from 47.50 to 49.75; of deaths from scarlet fever, from 10 to 14.75; from measles, from 6.75 to 7.75; from whooping-cough, from 3.75 to 9; from pneumonia, from 123.75 to 242.75; from pulmonary tuberculosis, from 145 to 169.5; from influenza, from 3.75 to 5.25; from cancer, from 45 to 54.75; from diseases of the urinary system, from 116.75 to 134.75, and from diarrheal dis-

eases, from 32.5 to 35. Smallpox has again appeared in the vital statistics as a cause of death; and two deaths from it were recorded during the month. The last death from smallpox previously reported was in the week ending Nov. 8. The weekly average of deaths from typhoid fever declined from 17 to 8.75, and from bronchitis, from 42.75 to 37.

Obituary.

JOHN HOMANS, M.D.

DR. JOHN HOMANS died at his home in Boston on Saturday, Feb. 7, in the sixty-sixth year of his age. He had been confined to his house for scarcely two weeks. Within three weeks of his death he had been attending to some of his professional duties and had been present at the regular dinner of an army dining club, where he was the life of the occasion. And yet for a number of years Dr. Homans had been conscious of several physical disabilities, any one of which would have ordinarily sufficed to depress or invalid a person of a less cheerful and courageous temperament. He was born in Boston, Nov. 26, 1836. His grandfather, of the same name, was a graduate of Harvard College, 1772, and an army surgeon during the War of Independence; his father, of the same name, was a graduate of Harvard College, 1812, and practised medicine in Boston. His nephew, whose death occurred less than a year ago, also bore the same name, and was a prominent practitioner of medicine. There have, therefore, been four representatives of the medical profession of this same name in this neighborhood within the last century and a quarter.

Dr. Homans graduated from Harvard College in 1858, and received his M.D. degree from the Harvard Medical School in 1862. The same spirit which inspired his grandfather in 1776 impelled him, at the outbreak of the Civil War in 1861, to offer his services to the Government. He was at that time a surgical house officer in the Massachusetts General Hospital, and had not yet taken his medical degree. In January, 1862, he was commissioned an assistant surgeon in the United States Navy, and served on the gunboat “*Aroostook*” during the search for the disabled U. S. S. “*Vermont*,” in Hampton Roads, and later on the James River, during McClellan’s campaign. He was at the battles at Fort Darling, Va., and at Malvern Hill. In November, 1862, he was given a commission as assistant surgeon in the regular army. He was at New Orleans, and later, on the staff of General Banks, took part in the disastrous Red River expedition. Those of his friends who were fortunate enough to have heard his informal accounts of that ill-advised expedition and of the search for the “*Vermont*” will not soon forget them. As side lights upon much that passes for history they were instructive as well as entertaining. Subsequently he was ordered to Washington, and held various surgical appointments in connection with the Army of the Shenandoah. He was surgeon-in-chief of the first division of the Nineteenth Army Corps, was present at the battles of Winchester and Cedar Creek, and ultimately became medical inspector on the staff of General Sheridan. He resigned from the army in May, 1865, after an eventful career of a little over three years. He immediately went to Europe for study and travel, spending most of his time in Vienna and Paris. In November, 1866, he returned to Boston and began to practise his profession. He was appointed successively a surgeon at the Boston Dispensary, the Children’s Hospital, and August, 1868, at the Carney Hospital. His second ovariectomy was done at the Carney Hospital in April, 1873. He became consulting surgeon at this hospital in 1880, and resigned in 1883. He was appointed a surgeon to out-patients at the Massachusetts Hospital in 1876, a visiting surgeon in 1882, and resigned in 1900, having reached the age limit of sixty-three years.

Dr. Homans’ name as a surgeon will be chiefly associated with the development of ovariectomy and of general

abdominal surgery in New England and in this country. His first ovariectomy was done in 1872. His first five cases, of which only one was a simple cyst without adhesions, were done without antiseptic precautions, and all died. In 1877 he began to use the carbolic spray and had his first recovery. The following year he operated on six cases with only one death. The number of cases rapidly increased. In 1882 he did 45 ovariectomies, with six deaths, and the following year 26, with only one death. After the middle of October, 1887, the spray was given up. In 1888 he operated on 40 cases without the spray, with two deaths. In 1899 there were 18 operations, all ending in recovery. In all, between 1872 and 1900, Dr. Homans performed 601 ovariectomies; of these 285 were done under carbolic spray, with 32 deaths; and 251 were done without the spray but with aseptic precautions, with 25 deaths, the large majority of these later fatal cases, however, were complicated by cancer. In April, 1881, he began to do abdominal hysterectomies, and up to 1887 he had 10 deaths and 17 recoveries. In 1887 he improved what he considered a faulty technique, and from this year to 1897 he did 112 abdominal hysterectomies, with 15 deaths. He was one of the first to operate upon the appendix, that is, to open the peritoneal cavity in search of an abscess in that region.

This is a brief and imperfect outline of some of his work in abdominal surgery. The real value of his services, and that to which we wish especially to direct attention, lay not so much in the number of operations or in percentages of recovery, as in the foresight, energy and independence which made him an early and useful instrument in the development of this most fruitful department of modern surgery.

Nothing can illustrate this better than the following proviso which accompanied his nomination by the surgical staff of the Massachusetts Hospital in February, 1882, to a vacancy on that staff: "Provided, also, he understands and desires to comply with the restrictive policy of the hospital in relation to the practice there of specialties, particularly the specialty of ovariectomy." Especially is this so, if this proviso be read in conjunction with the following vote, passed by the trustees of that hospital in January, 1900, on accepting his resignation from that staff:

"In accepting the resignation, the trustees would express their sense of the great value of Dr. Homans' services to the hospital, as surgeon to out-patients from 1876 to 1882, and as visiting surgeon from 1882 to 1899, when his term has expired by limit of age. Through the whole period of his connection with the hospital, Dr. Homans' service had been rendered with promptness and fidelity. The intercourse between him and the officers of the hospital has always been of the most agreeable nature. But besides the faithful performance of his regular duties, Dr. Homans has advanced to its present point the whole treatment of abdominal surgery, and by his skill, courage and unselfish devotion has added to the reputation of the Massachusetts General Hospital and the welfare of mankind."

The dates of his appointments at the Massachusetts Hospital mark with some accuracy the development of antiseptic surgery in hospital practice, and the subsequent introduction of a class of operations which hospital sepsis had previously excluded from crowded wards.

Rising thus, as Dr. Homans did, at an early age in virtue of his qualities to positions of high responsibility, he became an active participant in many important events of those times, and was intimately associated with not a few of the leading actors. He thus acquired an experience of military surgery and a training not only in the skillful use of the knife, but in dealing with great emergencies which was of invaluable service to him later in life, and doubtless exercised an important influence in molding into shape those natural gifts which he possessed in an eminent degree, and which entered so largely into his character as a matured surgeon.

His entrance upon civil practice came at the close of an era in the history of medicine. He had been an active participant in the practice in vogue during the last years of that period, — far more so than is usually given to a young man of his years, — so that he enjoyed, at the opening of the new era of surgery, the advantages of both youth and experience. His alert mind and naturally courageous character were qualities which enabled him to read clearly the signs of the time and to select the path which they pointed out for him. He had fully equipped himself with the

latest instruments for an operation which was still looked upon with distrust by the majority of the profession, and it was not long before he was able to report in the pages of this JOURNAL his rapidly increasing list of cases of ovariomy. Few can realize to-day the obstacles to be overcome in carrying out plans necessary to establish a special branch of surgery like this at that time. Dr. Homans was, however, never at a loss for expedients where a case of operative surgery was concerned. While surgeon to the Dispensary he would undertake without hesitation difficult and responsible operations, transport the patient in his own carriage to the outskirts of the city, and, if necessary, pay the board until the case was convalescent. This dispensary experience paved the way for work in the wards of the Carney Hospital and later at St. Margaret's Infirmary with which, the first private hospital in Boston, he was so long associated. And so from small beginnings he established himself in the rôle of a pioneer in abdominal surgery, and entered upon a brilliant career as an exponent of the wonderful possibilities which were to be achieved as the outcome of antiseptic surgery.

The most prominent of his characteristics was courage. This led him from the beaten track, and molded him into a bold and successful operator in the most responsible and difficult cases. To this quality was added a dogged determination to overcome obstacles. Often at the moment of uncertainty and doubt in a long and trying operation he would exclaim to his assistants, "Let us make an effort," and thus carry the case through to a triumphant conclusion.

Honesty was another striking quality of his character. "Honest John Homans" is a phrase familiar to scores of consulting colleagues and students with whom he came in contact. The graduate classes of the Harvard Medical School have, of late years, enjoyed the unusual privilege of a series of lectures on medical ethics in which, with characteristic virility and frankness, he laid down the relation of the practitioner to his colleagues and his patients. The readers of this JOURNAL are well aware that he was as ready to report a failure as a successful case.

Although a sufficient period of well-earned repose had been denied him, Dr. Homans had lived long enough to see his ambitions realized, and the surgery of which he was so enthusiastic and skillful an advocate placed upon an enduring basis. It can be said of him that at the close of his career he occupied an almost unique position in surgery, having been a *magna pars* both in the old and in the new régime. Had his life been spared a little longer, surgical literature would have gained much from a pen which had to bide its time until the knife should be laid aside.

In active work the sterner qualities of his character may have made themselves prominent to the outer world, but among intimate friends there were unfolded charming traits that easily gave him a foremost place when he chose to take it. Many who know of Dr. Homans only by reputation may not realize that in such an individual dealing largely with solemn problems of life and death, there existed the most attractive of those qualities which are associated with social life.

Dr. Homans was for many years a lecturer at the Harvard Medical School, the medical examiner of the New England Mutual Life Insurance Co., a member of the American Surgical Association, of the Society of the Cincinnati, of which his grandfather was a founder, and of the Order of the Loyal Legion. He leaves a widow and six children, three sons and three daughters. One son of the same name will follow the profession of medicine.

Correspondence.

MORTALITY IN BOSTON FOR 1832.

BOSTON, Feb. 1, 1903.

MR. EDITOR: There recently came into my possession an interesting book entitled "The Massachusetts Register and United States Calendar for 1833." This book gives as the "Mortality in Boston for 1832" the following curious list:

Apoplexy 15, diseases of the brain 17, diseases of the bowels 27, consumption 246, cholera infantum 7, cholera morbus 8, cholera, malignant, 78, convulsions 35, croup 40, dropsy 38, dropsy of the brain 44, dysentery 21, drowned 22, delirium tremens 10, lung fever 87, typhus fever 45, brain fever 13, scarlet fever 149, whooping cough 22, inflammation of the bowels 31, inflammation of the lungs 19, intemperance 44, influenza 24, measles 70, old age 62, palsy 19, stillborn 86, suicide 8, throat distemper 50, teething 21, accidental 12, heart, diseases of, 7, spasms 6.

It would be interesting to learn what changes a physician of to-day would make in the mortality lists of former years. A good diagnostician would make, no doubt, some sweeping changes in the alleged causes of death.

As the population of Boston in 1830 was 61,392, and must have been about the same in 1832, an excellent opportunity is afforded for a comparison of the prevalence and fatality of diseases then and now.

Faithfully yours,
FREDERIC ALLISON TUPPER,
Head Master Brighton High School, Boston.

Miscellany.

NEW YORK STATE BOARD OF CHARITIES.

THE thirty-sixth annual report of the State Board of Charities, just transmitted to the Legislature, directs attention to the urgent need of further provision in the State institutions for the care of idiots, epileptics and the feeble-minded. More than 70 feeble-minded children are being supported, at the public expense, in private institutions not adapted to their care, owing to lack of accommodation in the Syracuse State Institution for them. In various almshouses there are now at least 250 feeble-minded women for whom there is no room at the institution at Newark, while more than 600 idiots who are unsuitably cared for in city, town and county almshouses, cannot, with the present accommodations, be admitted to the State Custodial Asylum at Rome. Although the almshouses are improperly equipped for the care of epileptics, there are some 200 of these unfortunates awaiting admission to the Craig Colony, which the board recommends should be enlarged to accommodate them.

Regarding the inspection of almshouses, the report says: "It is a matter of gratification that the board is able to report a constant tendency toward improvement in the almshouses of the State. This improvement is especially manifested in more adequate provision for the care of the sick and in better methods of lighting, heating and ventilation." It is stated that during the past year there were 1,574 pupils in the various State institutions for the deaf, the largest enrollment in their history, and that the increase in the number of pupils in these schools seems to keep pace with the general increase in population, nearly 22% in the last decade.

MORTALITY ON OPPOSITE SIDES OF STREETS.

FROM a study of 3,973 deaths occurring in 1895, in New York City, on opposite sides of twenty streets, Alfred E. Thayer draws some interesting conclusions:

(1) The mortality on the north side of any street in the district studied is liable to be higher than the mortality on the south side of the same street.

(2) The higher northern mortality is due chiefly

to three diseases: pneumonia, phthisis and nephritis. The first two are especially fatal during cold weather, when the proper ventilation of living and sleeping rooms is most likely to be neglected; the third is also affected by lack of air and sunlight, both directly and also indirectly by the depression of mind consequent upon darkness and poor air.

(3) On the south side the greater freedom from these causes of death is due chiefly to the advantages of sunlight and ventilation enjoyed.

(4) The supply of air and sunlight has more effect upon the health of people living on the south side of a street and less upon the north, owing to the general habit of New Yorkers of living in the rear of the house.

(5) Zymotic diseases appear to be independent of these conditions and may occur in excess upon the south side of the street; in such cases the mortality also may be higher on that side.

(6) "Rear" houses are situated less favorably than single houses on a lot, because not only are they darker and less ventilated themselves, but they also deprive the other house of its proper light and air. This is applicable to the south side of the street; on the north, the house on the street acts as a "rear" house to the one behind it, by cutting off its light and air.

(7) The width of any street and the distance across yards, measured from the back of one house to the back of another, should be as nearly as possible the same, that is, the latter should never be less than the former; and the height of dwelling houses should bear some relation to these measurements, so that one house may not deprive another of its light and air.

(8) In the case of contagious diseases in any family, the importance of keeping the other children from school is closely related to the question of infant mortality below the age of five years.

(9) In general, people should be urged to keep their windows open and their shades up as much as possible, and this especially for dwellings on the north side of the streets and during the colder months of the year when ventilation is most neglected. — *New York Medical Journal*.

METEOROLOGICAL RECORD

For the week ending Jan. 31, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.		Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 25	30.52	18	20	16	93	82	87	N	N	12	16	N.	.12
M. . 26	30.46	22	27	16	82	63	73	N	S	10	5	O.	.0
T. . 27	30.29	32	42	23	77	88	80	S	W	8	15	O.	.0
W. . 28	30.00	42	49	36	88	100	94	S W	N W	7	5	R.	.0
T. . 29	29.94	34	39	29	100	100	100	N E	E	6	8	G.	.0
F. . 30	29.42	38	48	27	100	53	76	N W	W	5	22	G.	.40
S. . 31	29.80	30	34	26	60	66	68	W	W	20	19	C.	.0
Mean for week.													.54

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. **Mean** for week.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JAN. 31, 1903.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Whooping cough.	Scarlet fever.
New York . . .	3,785,156	1,874	396	22.78	18.81	4.37	.51	1.09
Chicago . . .	1,885,000	598	157	20.47	17.74	.62	2.49	2.07
Philadelphia . .	1,378,527	623	187	17.97	18.13	.96	.64	.32
St. Louis . . .	618,481	—	—	—	—	—	—	—
Baltimore . . .	533,712	242	67	19.83	21.48	4.13	4.13	—
Cleveland . . .	427,731	—	—	—	—	—	—	—
Buffalo . . .	387,994	—	—	—	—	—	—	—
Pittsburg . . .	351,745	137	41	27.00	19.71	2.19	3.65	—
Cincinnati . . .	335,140	—	—	—	—	—	—	—
Milwaukee . . .	315,307	—	—	—	—	—	—	—
Washington . .	285,103	—	—	—	—	—	—	—
Providence . . .	191,280	76	19	18.42	18.42	1.81	5.24	—
Boston . . .	603,163	269	72	18.95	21.18	1.86	.37	1.02
Worcester . . .	132,044	49	18	14.28	16.32	—	—	—
Fall River . . .	115,549	54	28	24.07	27.78	3.70	1.85	—
Lowell . . .	101,959	41	10	17.47	29.27	2.92	—	—
Cambridge . . .	98,639	26	10	7.70	23.10	—	3.55	—
Lynn . . .	72,497	27	5	—	—	—	—	—
Lawrence . . .	69,786	34	10	29.41	17.65	2.94	2.94	—
Springfield . .	69,389	17	5	17.64	5.88	—	5.88	—
Somerville . . .	68,110	23	4	13.04	17.39	—	—	4.35
New Bedford . .	67,198	42	19	26.19	23.81	2.38	—	14.29
Holyoke . . .	49,286	23	7	17.39	17.39	—	—	—
Brockton . . .	44,878	9	4	44.44	—	—	11.11	—
Haverhill . . .	42,104	16	3	12.50	32.25	—	—	—
Newton . . .	37,794	5	1	20.00	—	—	—	—
Salem . . .	36,876	13	4	38.50	—	—	—	—
Malden . . .	36,288	12	4	25.00	8.33	—	—	—
Chelsea . . .	35,876	20	6	5.00	10.00	—	—	—
Fitchburg . . .	35,069	14	8	—	21.42	—	—	—
Taunton . . .	33,656	21	6	14.28	14.28	—	4.76	—
Everett . . .	28,620	5	2	—	—	—	—	—
North Adams . .	27,862	7	3	14.30	—	—	14.30	—
Gloucester . . .	26,121	—	—	—	—	—	—	—
Quincy . . .	26,043	4	—	—	25.00	—	—	—
Waltham . . .	25,198	10	3	10.00	—	—	10.00	—
Brookline . . .	22,608	6	0	16.67	33.33	—	—	16.67
Pittsfield . . .	22,589	8	—	12.50	25.00	—	—	—
Chicopee . . .	21,031	15	9	26.66	26.66	—	—	13.33
Medford . . .	20,962	3	1	—	66.67	—	—	—
Northampton . .	19,883	5	0	40.00	—	—	—	—
Beverly . . .	15,302	3	1	—	—	—	—	—
Clinton . . .	15,161	2	1	—	50.00	—	—	—
Leominster . . .	14,806	—	—	—	—	—	—	—
Newburyport . .	14,478	6	1	—	—	—	—	—
Woburn . . .	14,300	3	—	33.33	—	—	—	—
Hyde Park . . .	14,175	—	—	—	—	—	—	—
Adams . . .	13,745	—	—	—	—	—	—	—
Attleboro . . .	13,677	—	—	—	—	—	—	—
Marlboro . . .	13,609	—	—	—	—	—	—	—
Melrose . . .	13,600	—	—	—	—	—	—	—
Westfield . . .	13,418	2	2	—	—	—	—	—
Milford . . .	13,129	—	—	—	—	—	—	—
Revere . . .	12,722	2	—	—	50.00	—	—	—
Frammingham . .	12,534	6	2	16.67	16.67	—	—	—
Peabody . . .	12,179	—	—	—	—	—	—	—
Gardner . . .	11,928	—	—	—	—	—	—	—
Weymouth . . .	11,344	6	1	—	50.00	—	—	—
Southbridge . .	11,268	—	—	—	—	—	—	—
Watertown . . .	11,077	1	—	—	100.00	—	—	—
Plymouth . . .	10,730	—	—	—	—	—	—	—

Deaths reported, 3,847; under five years of age, 1,067; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 781, acute lung diseases 659, consumption 384, scarlet fever 37, whooping cough 40, cerebrospinal meningitis 5, smallpox 16, erysipelas 9, measles 20, typhoid fever 73, diarrheal diseases 97, diphtheria and croup 84.

From whooping cough, New York 7, Chicago 10, Philadelphia 4, Baltimore 1, Pittsburg 5, Providence 4, Boston, Fall River, Cambridge, Lawrence, Springfield, Brockton, Taunton, North Adams and Waltham 1 each. From erysipelas, Philadelphia 2, Baltimore 3, Pittsburg 1, Boston 3. From smallpox, New York 1, Chicago 3, Philadelphia 4, Pittsburg 6, Boston 1, Haverhill 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,023, for the week ending Jan. 17, the death-rate was 17.5. Deaths reported, 5,072; acute diseases of the respiratory organs (London) 310, whooping cough 105, diphtheria 69, measles 130, smallpox 6, scarlet fever 52.

The death-rate ranged from 5.3 in Hornsey to 31.8 in Bootle; London 17.5, West Ham 18.1, Brighton 20.0, Portsmouth 15.8, Southampton 21.3, Plymouth 15.8, Bristol 14.3, Birmingham 21.7, Leicester 16.1, Nottingham 15.7, Bolton 18.6, Manchester 20.3, Salford 18.9, Bradford 16.7, Leeds 16.1, Hull 18.6, New Castle-on-Tyne 20.6, Cardiff 16.0, Rhondda 12.6, Liverpool 21.5, Newport (Mon.) 14.1.

SOCIETY NOTICES.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.—The American Laryngological, Rhinological and Otolological Society will hold its ninth annual meeting at Lexington, Ky., April 30, May 1 and 2, 1903.

WENDELL C. PHILLIPS, Secretary.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—A regular meeting of the society will be held at 3 Park Street, Boston, Mass., on Thursday, Feb. 19, 1903, at 7.30 P.M. The meeting will be in charge of the Dental Section, Dr. Marion L. Woodward, chairman.

Paper: Dr. P. W. Moriarty, "Fractures of the Maxilla." Cases will be reported and patients shown by Drs. Emma B. Culbertson, Clara J. Alexander and Agnes C. Viotor.

DR. AGNES C. VIOTOR, Secretary.

RECENT DEATHS.

JAMES R. MACGREGOR, M.D., of New York died on Feb. 5, at the age of seventy-one. He was graduated from the College of Physicians and Surgeons, New York, in 1853, and at the time of his death was one of the attending surgeons to the Metropolitan Throat Hospital. Dr. MacGregor was one of the earlier presidents of the New York County Medical Association, of which he was a founder.

EARLE EUGENE WOOLWORTH, M.D., of Brooklyn, N. Y., died on Feb. 5 in the Brooklyn Hospital, in consequence of a fracture of the skull, caused by being thrown from his carriage on Jan. 21. He was born in Lyonsdale, N. Y., and was thirty years of age. He was graduated from Hamilton College and from the medical department of the New York University, in 1897.

HENRY W. ALLEN, M.D., of Brooklyn, N. Y., a graduate of Bellevue Hospital Medical College, New York, in 1882, died on Feb. 5 at the age of forty-two.

J. FRANK VALENTINE, M.D., of Richmond Hill, Borough of Queens, N. Y., died from typhoid fever on Feb. 5. He was born in New York in 1856, and was graduated from the College of Physicians and Surgeons in that city in 1879. In 1890 he was made chief surgeon of the Long Island Railroad, and was afterwards elected president of the New York State Association of Railway Surgeons. He was also surgeon of the Thirty-second Regiment, National Guard; visiting surgeon to St. John's Hospital, Long Island City, and St. Catharine's Hospital, Brooklyn, and consulting surgeon to the Nassau Hospital at Mineola, Long Island.

EDWARD VON DONHOFF, M.D., of New York died in Bellevue Hospital on Feb. 6. He was graduated from the Louisville Medical College in 1870 and in Vienna in 1876. He practised for several years in Louisville, became distinguished as a surgeon, and for a time was professor of surgery in the State Medical College of Kentucky. He was well known as a writer on surgical topics.

JOHN HOMANS, M.D., M.M.S.S., died in Boston, Feb. 7, 1903, aged sixty-five years.

ERRATUM.

In our editorial on page 161 of the JOURNAL of Feb. 5, on "The Value of Simple Clinical Tests," in the thirteenth line from the end 20 cc. should read 20 c.mm.

BOOKS AND PAMPHLETS RECEIVED.

The Medical Epitome Series. Physiology. A Manual for Students and Practitioners. By Theodore C. Guenther, M.D., and Augustus E. Guenther, B.S. Series edited by V. C. Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

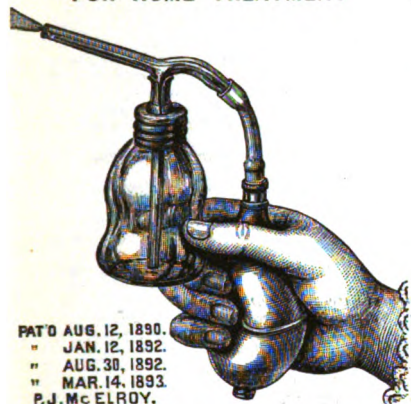
International Clinics, a Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession throughout the World. Edited by Henry W. Cattell, A.M., M.D. Vol. IV. Twelfth Series, 1903. Philadelphia: J. B. Lippincott Company.

The Use of the Electric Caustery Clamp in the Treatment of Cancer of the Uterus. By Charles F. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Reprint. 1902.

A Study of the Distribution of the Colon Bacillus of Escherich, and of the Sewage Streptococci of Houston in Polluted and Unpolluted Waters. By C.-E. A. Winslow, S.M., and Miss M. P. Hunnewell. Boston. Reprint. 1902.

The War against Disease. By C.-E. A. Winslow, Instructor in Sanitary Bacteriology in the M. I. T., Boston. Reprint. 1903.

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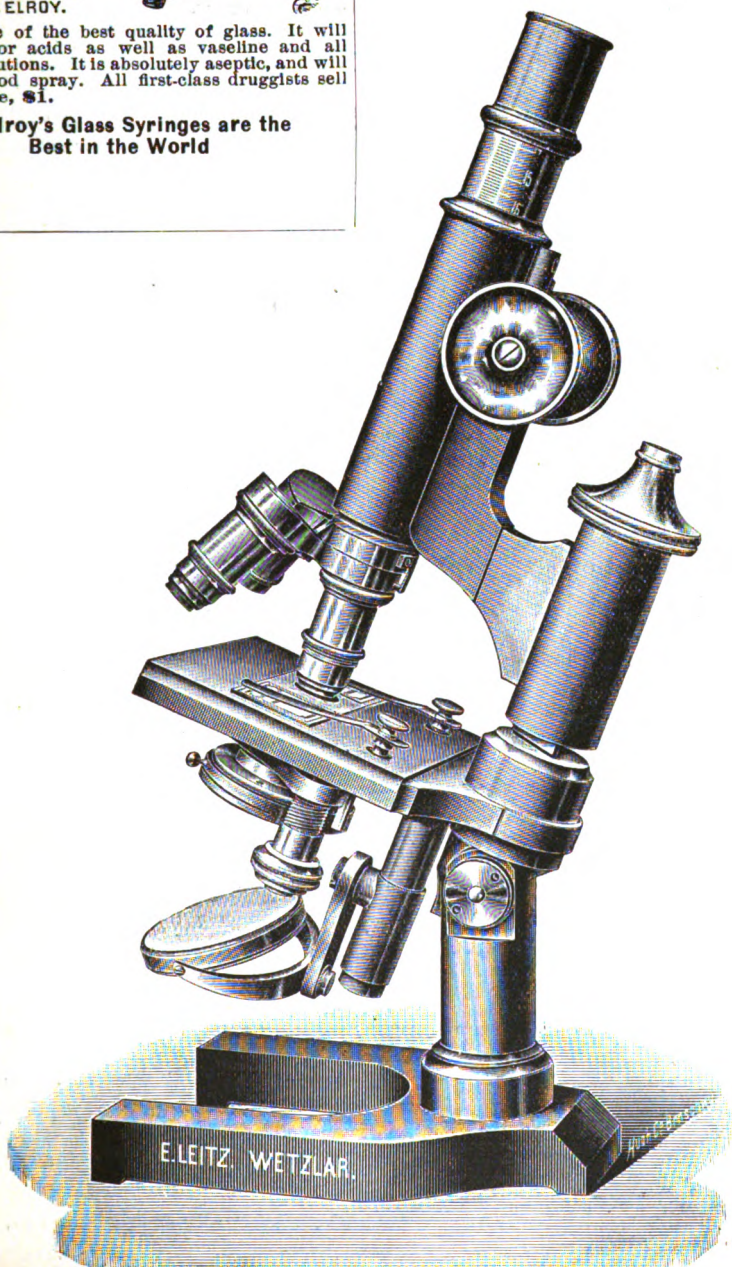
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From the office of Dr. C. F. Atwood, Everett Sq., Hyde Park, Mass., Jan. 6, 1903, a Leitz Microscope like accompanying cut. Number on base, 47,293; number on Oil Immersion Lens, 17,862.

Liberal reward for information leading to its recovery.



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In and after June, 1901, candidates for admission must present a degree in arts, literature, philosophy, or science from a recognized college or scientific school, with the exception of such persons, of suitable age and attainments, as may be admitted by special vote of the Faculty, taken in each case. All candidates, whether presenting a degree or not, are required to satisfy the Faculty that they have had a course in theoretical and descriptive (inorganic) chemistry and qualitative analysis, sufficient to fit them to pursue the courses in chemistry given at the Medical School. Students who began their professional studies elsewhere may be admitted to advanced standing; but all persons who apply for admission to the advanced classes must pass an examination in the branches already pursued by the class to which they seek admission.

The course of study required in this School for the degree of M.D. is of four years' duration. This requirement was established at the beginning of the year 1893-94.

The year begins Oct. 1, 1903, and ends on the last Wednesday in June, 1904. Instruction is given by lectures, recitations, clinical teaching and practical exercises distributed throughout the academic year. In the subjects of Anatomy, Histology, Physiology, Chemistry and Pathology, laboratory work forms a large part of the method of instruction.

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First Year.—First Term. Anatomy and Histology. *Second Term.—* Physiology and Physiological Chemistry.
Second Year.—First Term. Bacteriology and Pathology. *Second Term.—* Anatomy, Clinical Chemistry, Materia Medica and Therapeutics, Theory and Practice, Clinical Medicine, Surgery and Clinical Surgery.
Third Year.— Theory and Practice, Clinical Medicine, Surgery, Clinical Surgery, Obstetrics, Pediatrics, Dermatology, Neurology, Gynecology and Mental Diseases.
Fourth Year.—Required Studies: Clinical Medicine, Clinical Surgery, Ophthalmology, Otology, Laryngology, Orthopedics, Legal Medicine, Syphilis and Hygiene. *Elective Studies:* Ophthalmology, Otology, Orthopedics, Gynecology, Dermatology, Neurology, Bacteriology, Physiology, Physiological and Clinical Chemistry, Hygiene, Operative Surgery, Operative Obstetrics, Anatomy, Embryology, Clinical Microscopy.

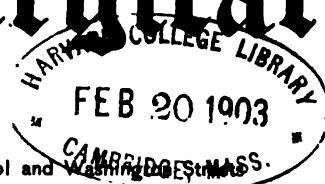
THE BOSTON Medical and Surgical JOURNAL

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THURSDAY, FEBRUARY 19, 1903

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UNDER THE EDITORIAL SUPERVISION OF

ALFRED STENGEL, M.D.

Professor of Clinical Medicine in the University of Pennsylvania

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OBSERVATIONS UPON LONG-DISTANCE RUNNERS.

EDITED BY J. B. BLAKE, M.D., AND R. C. LARRABEE, M.D.

THE final and culminating event in the Greek Olympian Games of 1896 was a foot race from the battlefield of Marathon to the stadium in Athens. The distance is 40 km., and the race was open to contestants from all parts of the world. The contest was won by a Greek shepherd, none of the French, German, English or American runners being in sight at the finish.

Several members of the Boston Athletic Association competed in those games. Since that time the association has held an annual Marathon run on Patriots' Day, over a course of equal length, from Ashland to the clubhouse on Exeter Street. In 1899 Drs. Williams and Arnold¹ reported the results of observations upon the contestants of that year; and the results of a series of similar observations during the past three years are here presented.

The examinations were made before the start and immediately after the finish of the contests. As some of the physical signs are modified or even entirely disappear very quickly after the race, it was necessary to have a large number of observers trained and assigned to particular duties. This resulted in a very large mass of data which it seemed best to condense and edit in the present form. The facts obtained, and the conclusions drawn, are given first. Methods and results of examinations and individual observations are added in greater detail for the benefit of future observers, or those specially interested in the subject.

The length of the course is twenty-four miles. The road is an average New England highway for two thirds of the distance, and for the remainder is the hard macadam surface characteristic of Boston's parkways. The course covers a rolling country, one or two hills, notably in Newton, being extremely long and trying. The general trend of the slope is downward.

No restrictions are put upon the runners, save that they shall proceed on foot over the specified route and shall not receive any assistance. They may, therefore, eat or drink what they please during the race. Each contestant is accompanied by an official guard on a bicycle, usually a volunteer from the Ambulance Service of the State Militia.

The costume of the runners is extremely light, consisting of cotton shirt and running pants and fairly heavy leather shoes or "sneakers," laced about the ankles and generally worn without stockings. The contestants were of various nationalities, including one Greek and one Mohawk Indian. Their ages ranged from sixteen years upwards; their occupations from laborers to students; their athletic standing was described by that somewhat elastic and much-discussed term "amateur." At the end of the race they were taken in the elevator to the dressing rooms of the clubhouse and immediately examined. After this they took a warm

bath, were given a rubdown and a light lunch, and shortly started for home, usually without assistance.

Pulse.—The rate was always increased in frequency, though the increase was often surprisingly small. It was least in the best-trained men and in those who finished slowly. In some instances it was almost as slow at the finish as at the start—notably in the winner of 1902. A very rapid pulse (over 150) was unusual.

A moderate irregularity was not infrequent.

An intermittent pulse was occasionally present.

A threadlike pulse of small volume was found in the rare cases of severe fatigue.

On the whole, the radial pulse was a fair index of the condition of the runner, though the rate alone often proved misleading.

Weight.—The estimation of the loss of weight was only approximate, for reasons given later. It varied from two to seven pounds, the extremes being one and ten pounds.

The amount lost was apparently determined by a combination of factors, including the original body weight and physical condition, the speed, the amount of solids and liquids consumed during the race and the atmospheric conditions.

Temperature.—Before the start, the mouth temperature showed not infrequent variation from the normal. This was usually a fraction of a degree, but in some instances reached 100.6°.

After the finish the mouth temperature was sometimes raised, often normal and occasionally subnormal. The rectal temperature, however, was invariably raised. In the entire three years only three exceptions were found to this rule, which will be discussed and explained below.

The difference between mouth and rectal temperature, taken simultaneously, was often surprisingly large, reaching in one instance 7°. The explanation of this interesting fact is that the men ran with open lips, and the forced and continuous breathing of cold air lowered the temperature of the mouth cavity.

The surface of the body was almost invariably cool and sometimes cold, but no distinct chills were observed.

Sphygmographic pulse tracings.—(1) Violent and prolonged muscular exercise invariably causes an alteration in the character of the pulse curve, as shown by the sphygmograph.

(2) This change in the character of the tracing is dicrotic in nature and due to a lowering of arterial tension.

Blood.—The principal finding has a leucocytosis corresponding in intensity and in type with that observed in various inflammatory diseases.

Hearts.—Before the start, the hearts invariably showed enlargement, due mainly or wholly to hypertrophy. At the finish, in practically all cases, there was further slight enlargement, inferred to be the result of acute dilatation.

In some cases murmurs, generally systolic, were heard; some were heard at the start, and were considered to be the result of nervous excitement. Concerning the nature of a number heard at the finish there is considerable doubt; we do not feel justified in asserting that they were due to mitral regurgitation.

Urines.—The examination of the urine shows

¹"The Effects of Violent and Prolonged Muscular Exercise upon the Heart." Phil. Med. Journ., June 3, 1899.

that in every case an active hyperemia is developed during the race, probably due largely to the irritation from the "toxins of fatigue," inasmuch as the blood pressure is not increased. This condition clears up quickly, as albumin and casts had disappeared in all the cases examined one week after the race.

The amount of urine for twenty-four hours is lessened, the color becomes higher, the specific gravity rises and the reaction becomes more intensely acid. Albumin appears in quantities varying from the slightest possible trace to a trace, and in the sediment we find in every instance hyaline and fine granular casts, a few coarse granular and epithelial casts and more or less blood; normal and abnormal, free and on casts. Rare brown granular casts are found in some sediments, and calcic oxalate crystals in the majority.

The urea is not increased after the race, but, on

and a contestant who had run fast for most of the course might slow down at the finish, particularly if he was far ahead of the next runner; his pulse rate would already have diminished materially before the end of the race. The third factor, the time elapsing before the observation, was also important. Two or three minutes are sufficient to change a very rapid to a moderately rapid pulse. This is shown in the following table, which compares the pulse rates after the 1900 race with the race in 1902. It will be seen at a glance that the 1902 average is faster, yet the time of the race and the condition of the men were about equal. The only varying factor was the time which elapsed before counting the pulse. In 1900 two or three minutes elapsed before the runner was stretched upon the table in the examining room; in 1902 the observer was in the elevator, and took the pulses as the men stepped from the street.

PULSE RATES AT FINISH.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1900 . .	108	120	130	144	108	116	98	88	73	107	100	98	106	88	132	104	128	80	94	104
1902 . .	82	108	126	132	122	96	144	144	160	120	162	136	180	140	160	164	156	146		

the contrary, appears in the majority of cases to be less for the first twenty-four hours following the race than for the last twenty-four hours before the race. By the end of a week, however, it has again risen to normal.

The pulses of the first two men in 1902 were very slow, but, even with these exceptions, the pulses of 1902 were faster than 1900.

The following table compares the pulse rates before and after the race of 1900:

BEFORE AND AFTER RACE, 1900.

1900	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Before	100	80	72	76	84	84	78	104	84	72	80	82	80	86	92	120?	126
After	108	120	120	144	116	88	100	98	106	88	132	104	80	96	104	124	116

The chlorides are markedly diminished after the race. It is probable that the output of uric acid is diminished, and that of phosphorus increased, but the results vary so much that no definite conclusions can be drawn.

PULSE, WEIGHT AND TEMPERATURE.

BY J. B. BLAKE, M.D., AND D. D. SCANNELL, M.D.

Pulse.—The pulse rate seemed to depend on three factors: First, the condition of the heart itself; second, the character of the exertion, particularly in the last few minutes of the race; third, the time which elapsed between the actual finish and the observation of the pulse. The hearts best prepared for the contest seemed to have the slowest rates. These hearts were always hypertrophied, but were not overworked by excessive training. In each of the three contests, however, occasional slow pulse rates were observed in which the hearts were not in particularly good condition. These we believe to be the exception and not the rule. The second factor influencing the rate was very effective—a man may have covered the entire distance to within half a mile of the end at a slow rate of speed, and may then have run very fast either racing a neighbor or encouraged to make a creditable appearance before the thousands lining the sidewalks—his final exertion would send the pulse rate up enormously; whereas the reverse also occurred,

¹ These figures represent the position of the men at the finish.

In this table there are three cases where the pulse at the start was as fast or even faster than at the finish. These men finished slowly, and a few minutes elapsed before the pulse was taken. At the start the men differed much in composure, many even of the veterans being extremely nervous; whereas at the finish, with few exceptions all were stolid with fatigue.

Weight.—These observations were less accurate than those of pulse or temperature, because they were open to the following sources of error: First, difference in scales; second, solids and liquids ingested during the race; third, small articles of clothing. As it is difficult to accurately calculate the first of these, and entirely impossible to estimate the second, it is obvious that the following figures can be accepted as only moderately accurate.

The extremes of one-half pound (one case) and one pound (one case) on the one hand and ten pounds (one case) on the other may be disregarded. Without doubt the first two were much influenced by the above-mentioned source of error. A large majority of the cases would be found to lie within the three- to six-pound limit. This was certainly a moderate loss, and though the time was three times that of a football game, and ten times that of the average four-mile boat race, not only the average but even the maximum loss was less than has been noted in either football or rowing. In general the heaviest men and those who ran fastest lost the greatest amounts, though there were many exceptions to this.

The heaviest man of whom we have any record during the three years weighed only 166½. He did not finish. The heaviest who completed a race was 155. The lightest starter weighed less than 100. The lightest who finished weighed 104. Obviously, these are not contests for heavy weights.

either between the temperatures before and after the race, or the relation of high or low temperature to loss of weight or extreme fatigue.

The important fact demonstrated by the observations of these three years on 45 men is that the mouth temperature is not a reliable factor. The

Tables of Weights.

1900	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Before	135½	121	130	137½	136	141	124	155	104	124½	123½	131	134½	115½
After	130½	114	124	130½	130	134½	130½	147½	100½	119½	117½	121	133	111½

1901	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Before	147½	131	110½	152½	134½	111	137	139½	110½	130½	123	139½	130½	130½
After	143½	126½	108	147½	139½	107½	124½	133	107½	116	120	123½	130	130

1902	1	2	3	4	5
Before	125	130½	114	133	142½
After	127½	124½	109½	128½	137½

Temperature.—These observations were considerably more accurate than those of the weight, and were taken by mouth before the start and by mouth and rectum simultaneously immediately after the finish. The clinical thermometers used were similar to those found in the large Boston hospitals, and were presumably correct to $\frac{1}{16}$ of a degree.

reason is plain. The temperature of the air was colder in 1900 than in the other years; and in 1899, when extreme subnormal mouth temperatures were noted by Williams and Arnold, the air was colder than even in 1900. Every one knows that forced mouth breathing accompanies all severe muscular exercise, unless it be of the

1900	1	2	3	4	5	6	7	8	9	10	11	12
Before—Mouth	98.6°	99.2°	98.0°	100.4°	99.5°	98.8°	99.0°	100.6°	100.4°	98.8°	98.2°	100.4°
After } Mouth	98.8°	99.6°	102.3°	97.4°	99.7°	98.6°	97.0°	97.4°	101.5°	97.2°	99.8°	97.6°
Rectum	104.4°	99.4°	104.4°	103.8°	104.0°	98.0°	104.0°	101.0°	103.4°	100.0°	103.0°	103.6°

1900 (continued)	13	14	15	16	17	18	19	20	21	22	23	24
Before—Mouth	100.7°	100.2°	100.0°	99.8°	100.5°	98.3°	..	..	..	..	..	..
After } Mouth	100.3°	100.8°	100.8°	99.6°	99.6°	97.8°	100.2°	98.4°	97.4°	100.4°	98.4°	99.6°
Rectum	101.3°	103.0°	102.8°	103.5°	103.6°	102.8°	103.5°	103.5°	99.0°	104.5°	103.5°	103.8°

1901	1	2	3	4	5	6	7	8	9	10
Before—Mouth	99.4°	98.0°	97.2°	98.3°	98.9°	98.9°	98.3°	98.7°	97.1°	98.0°
After } Mouth	98.6°	98.2°	97.5°	97.4°	97.4°	97.4°	97.3°	98.0°	99.3°	99.3°
Rectum	102.3°	103.4°	104.4°	101.3°	101.4°	100.9°	100.0°	101.3°	96.0°	100.6°

1902	1	2	3	4	5	6	7	8	9	10	11
Before—Mouth . . . . .	..	..	98.6°	99.1°	98.6°	..	..	..	..	..	..
After } Mouth	97.6°	100.8°	99.0°	97.4°	99.4°	97.9°	99.0°	98.8°	97.0°	98.1°	98.8°
Rectum	101.7°	102.7°	103.0°	102.0°?	100.7°	100.4°	102.0°	101.0°	102.6°	103.5°	102.0°

These tables show that much more attention was paid to the temperatures in 1900 than in 1901 or 1902. The results are essentially the same, however; the 1900 shows a proportionately higher average both before and after the race. No less than eight out of eighteen examined before the race in this year had a temperature varying from 100° to 100.7°. There is no obvious explanation of this fact. All these men were in good condition and strong enough to finish. They did not have unusually high temperatures at the finish, nor did they show unusual fatigue. In fact, during the entire three years no definite relation could be established

briefest duration. Under the conditions of these races there is no reason why the mouth should not become almost as cool as the surface of the body. For the time being it is no longer a closed cavity. On the other hand, the rectal temperature has invariably raised, the three exceptions being, first, a man who by mistake or intent was dosed with considerable quantities of alcohol;—this man was a teetotaler and supposed he was being given hot beef tea; he was plainly tipsy at the finish;—second, a man who also had a large amount of alcohol and who was so restless that it is questionable if the thermometer really entered the sphincter; third, a

man exhausted more than the average, also overstimulated, the only one of the three whose condition was not as good as the average at the finish. Other contestants may and probably did drink certain amounts of brandy while running, but none showed the effects of it, and no evidence was obtained that a subnormal temperature depends either on overtraining or extreme fatigue.

Forced exertion of this character raises the body temperature. Other agents, acting simultaneously, may cool exposed portions of the body. In rare instances the ingestion of large doses of alcohol seems to prevent the body temperature itself from rising.

REPORT ON PULSE TRACINGS TAKEN FROM THE MARATHON RUNNERS IN THE RACES OF 1900, 1901, 1902.

BY ALLEN CLEGHORN, M.D.

YEAR.	Complete record. (Start and finish.)	Start only.	Finish only.
1900	11	4	9
1901	2	5	4
1902	4	3	5
Totals . . .	17	12	18

THE above table refers to the number of tracings obtained in the different years. From two runners only were complete tracings obtained in these three years, while from five, tracings were taken in two consecutive years, — naturally these tracings are the most valuable. Then follow the *complete* individual records obtained in the different years, and lastly in importance come the “*Start only*” and “*Finish only*” tracings. However, it is possible by combination to make a general comparison between these latter, and they show just as great a difference in the character of the curve as do the “*complete records*.”

The method employed to obtain the pulse curves was the same that is used in the physiological department of Harvard Medical School. It consisted in placing a glass thistle tube over the right carotid artery at a level with the lower border of the thyroid cartilage. The thistle tube was connected with a very delicate tambour writing on the smoked surface of a revolving drum. The thistle tube was held on the neck of the contestant by the observer, the pressure over the artery being varied until the lever was found to give the greatest incursion when the tracing was recorded. In all cases the subject was seated during the observation. This method was adopted because it could be manipulated with greater ease and speed than either Dudgeon's or Marey's sphygmograph.

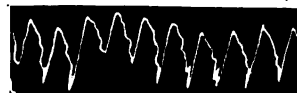
The results were uniform; the candidate invariably presented at the start of the race a normal pulse curve, but at the finish the curve was found to be profoundly altered, the tracing pointing to a condition of enormously low arterial tension. In some cases the pulse was extremely dicrotic. In about two thirds of the cases it was also found that the pulse was markedly irregular, but in the

year 1900 no irregularity was noticed in the runners who finished first, second and third.

TYPICAL PULSE TRACINGS.



BEFORE.



AFTER.

Discussion of Results. — These observations open up some interesting points for consideration. All competitors lost considerable weight during the race, presumably by loss of water through sweating, etc. Is the low arterial tension the result of a concentration or lessening of the quantity of the blood circulating in the vessels, and consequently the vessels not being completely filled? Is it due to the action of the “*depressor nerve*” endeavoring to ease the overworking heart by increasing the caliber of the arterioles, and so lessening peripheral resistance, or is it due to an active dilatation of the arteries caused by the circulation in them of fatigue products, CO_2 , etc.? My individual observations do not definitely point to any one of these problematical causes more than another, but, combined with the results of the other observers, would suggest that all these factors are probably concerned in producing this low tension pulse.

BLOOD PRESSURE.

Twice, during the three years occupied by this series of investigations, were attempts made to measure the blood pressure of the various contestants, both at the beginning and at the finish of the race. These experiments were made in the years 1900 and 1902.

In the former year a modified form of Mosso's apparatus was used. It was found troublesome to transport and to work; it consumed too much time in adjusting, and in obtaining the graphic record, etc., serious defects when celerity was required at the finish. In the latter year another form of tonometer was employed. This instrument is considerably less in bulk, fitting an ordinary pocket, and is much simpler to apply than the former, but on investigation it was found to be measuring the peripheral (capillary) circulation and not the arterial pressure. Consequently both methods, although the best we could devise, were unsatisfactory.

In the results obtained by these two methods the individual variation in pressure was so great that it was deemed best to reject them, only one point being as a rule maintained throughout; that is, in the majority of cases the blood pressure, as measured by Mosso's apparatus, and the peripheral pressure, as measured by the tonometer, were, in the various contestants tested, usually lower at the finish of the race than at the start.

THE BLOOD.

BY RALPH C. LARRABEE, M.D., WILDER TILESTON, M.D., AND
WM. R. P. EMERSON, M.D.

THE following results were obtained from a study of the blood in certain of the contestants in the races of April 19, 1901, and April 19, 1902. The total number of cases observed was eleven, in two of which the observations were so incomplete as to be of little value. The red and white counts were made with the Thoma apparatus. An effort was made in 1902 to estimate the hemoglobin before and after the race with the Tallqvist scale, but the results were found to be so variable that they were discarded. This method, admirable as it is for the approximate estimation of the hemoglobin in clinical work, is far too inaccurate to be of service in an investigation of this sort.

In making the differential counts the specimens were stained in 1901 by the Ehrlich triple stain, and no effort was made to count the mast cells. In 1902 two methods of staining were used — Wright's modification of the Leishman method and the Ehrlich triple stain, with the additional brief dip in methylene blue as advised by Hewes to show the mast cells. Except in some of the normal specimens obtained before the race in 1901, a thousand cells were counted in each instance.

hour before the start. In 1901 the diluted blood in the pipettes was taken to Boston and counted after an hour or two. In 1902 the examiners remained in Ashland till a later train, and made the white counts as soon as the material was collected. Probably no specimen waited over a half hour. At each puncture six spreads were made and dried in the air on cover slips. At the finish the blood was collected in the same way and examined at once. Two of the preliminary white counts and all the preliminary red counts were made a few days before the race. In two men who gave up after running fourteen or fifteen miles the blood was not obtained till they reached Boston by train, one and a half and three hours respectively after they had ceased to run. These exceptions are noted in the table.

The classification of leucocytes adopted needs little comment. Under "large mononuclears" we have included the "transitional forms" of Ehrlich, those which have indented, horse-shoe shaped or beaded nuclei but no protoplasmic granules. As myelocytes we have classed all mononuclear neutrophils. The intermediate forms between these and true polymorphonuclear neutrophils, that is, neutrophils having indented or horse-shoe shaped nuclei, have been counted as polymorphonuclear neutrophils.

NAME.	Year.	BEFORE RACE.							AFTER RACE.							REMARKS.			
		* Reds.	Total Whites.	Polymorphonuclear Neutrophiles.	Small Mononuclears.	Large Mononuclears and Transitionals.	Eosinophiles.	Mast Cells.	Myelocytes.	Reds.	Total Whites.	Polymorphonuclear Neutrophiles.	Small Mononuclears.	Large Mononuclears and Transitionals.	Eosinophiles.		Mast Cells.	Myelocytes.	
J. L. . .	1901	...	*5,800	68.3% 3,666	26.3% 1,554	8.3% 476	1.8% 104	..	0	...	16,300	90.3% 14,699	4.5% 739	4.4% 713	0	..	0.8% 180	Many cells intermediate between polymorphonuclears and myelocytes.	
H—ks . .	"	...	4,800	73.3% 3,494	18.3% 874	8.3% 394	0.8% 38	..	0	...	14,400	88.5% 12,744	7.0% 1,008	4.4% 634	0	..	0.1% 14		
McA. . .	"	...	3,700	73.0% 2,664	14.6% 540	10.6% 392	2.6% 96	..	0.3% 7	...	20,800	88.3% 17,430	7.3% 1,622	8.3% 1,706	0.3% 42	..	0		
P.	"	...	*8,300	74.0% 6,068	18.4% 1,509	5.6% 459	2.0% 164	..	0	...	22,200	86.1% 19,114	6.6% 1,465	7.1% 1,576	0	..	0.3% 44		Few cells intermediate between polymorphonuclears and myelocytes.
J. L. . . .	1902	4,450,400	4,333	57.5% 2,491	29.4% 1,274	12.2% 529	0.8% 35	0.1% 4	0	4,340,800	14,200	86.4% 12,269	6.5% 923	6.9% 965	0	0	0.3% 43	Pale, much exhausted.	
C.	"	(Apr. 17) 4,808,000	5,300	66.6% 3,464	19.7% 1,024	11.4% 506	1.7% 88	0.6% 31	0	6,074,400	20,400	88.5% 18,065	3.3% 449	9.1% 1,856	0.1% 20	0.1% 20	0	Good condition at finish.	
H—n . .	"	(Apr. 17) 4,872,000	5,700	70.1% 3,996	18.5% 1,055	9.9% 564	1.2% 68	0.3% 17	0	Not taken	18,300	83.7% 15,334	6.9% 1,266	9.0% 1,638	0.2% 36	0.1% 18	0.1% 18	Ran but 14 miles. Examined 3 hours after finish.	
P.	"	(Apr. 17) 5,392,000	8,000	53.9% 4,312	28.2% 2,256	13.4% 1,072	3.7% 296	0.8% 64	0	5,418,600	27,500	79.6% 21,890	6.7% 1,842	13.1% 3,608	0.3% 82	0.1% 27	0.3% 55		
H—ks . .	"	5,516,000	6,000	71.7% 4,302	19.6% 1,176	7.8% 456	0.8% 48	0.3% 18	0	6,168,000	22,600	87.4% 19,752	4.2% 949	8.2% 1,868	0.1% 23	0	0.1% 23	Cyanosis. Ran but 15 miles. Examined 1½ hours after finish.	
F.	"	4,826,000	7,600	..	..	..	..	..	..	..	22,600	..	..	..	..	..	..	Ran but 13 miles. Examined 2 hours after finish.
Z. . . . .	"	...	..	..	..	..	..	..	..	..	27,700	..	..	..	..	..	..	16 years old.

* Preliminary red counts made two days before the race.

The method of procedure was as follows: The blood was first collected at Ashland during the

The blood before the race showed no very striking abnormalities. In the case of J. L. in 1902

there was an abnormally low red count. This man was pale and did not appear to be in the best of condition. He finished third, in rather poor shape. No further cause for the anemia was found. Two men showed percentages of polymorphonuclear neutrophiles somewhat below normal. One of these was the man J. L. just mentioned as being in poor condition. The other, P., appeared to be in excellent condition, though he was eleven pounds heavier than in 1901. The other men, for the most part, showed rather high counts of polymorphonuclear neutrophiles, which is perhaps to be expected in young men in the best physical condition.

At the finish marked changes were found in the red, white and differential counts. It will be convenient to speak of these in order.

Red counts were secured in but four cases both at start and at finish, and one of these did not complete the race. Two showed no marked change, but the other two showed decided increase. One of the latter, C., finished sixth in excellent condition, his time being three hours and seven minutes. The other, H—ks, stopped running after fifteen miles, came in by train, and was examined one and a half hours after he ceased to run. He was slightly cyanotic. The explanation of this increase in reds is probably to be found in concentration due to loss of fluid.

White counts were obtained in every case before and after the race. They showed without exception a leucocytosis which varied from 14,200 to 27,700, and which was present in those who did not finish as well as those who did. The highest figure was obtained in the case of Z., a boy of sixteen, who finished the race in good form, jumped up on the examining table without help, and calmly announced that he had falsely stated his age as nineteen in order not to be excluded.

The differential counts showed that the greatest increase was in the polymorphonuclear neutrophiles, which were in every case much more numerous, both relatively and absolutely, at the finish than at the start. In the mononuclear elements the changes were equally striking and constant. The percentage of large forms as compared with the small ones was invariably increased. In all but two cases, in fact, the large forms exceeded the small ones at the finish, while at the start the small ones were invariably the more numerous. As regards absolute numbers per cubic centimeter there was always an increase in the large mononuclears during the race, while in the small mononuclears there was an absolute decrease in five out of the nine cases studied. Eosinophiles were in all cases both relatively and absolutely decreased. In four cases they were absent at the finish. The mast cells showed similar changes. In seven of the nine cases a few myelocytes were found. They were perhaps more numerous than the figures indicate, as we counted as polymorphonuclear neutrophiles a certain number of cells having neutrophilic granules but more or less indented nuclei. In fact, in 1901, two cases showed numerous cells intermediate between polymorphonuclear neutrophiles and myelocytes concerning whose classification there was much doubt. No abnormalities were noticed in the size, shape or coloring of the reds and no nucleated red cells were seen.

In commenting upon these changes in the leucocytes it must be remembered that an increase in the white corpuscles may be due to an increase in all the forms alike, so that the percentages of the different varieties remain the same,—the so-called "physiological type," such as is seen during digestion, in pregnancy and after parturition, massage or cold baths. Or it may be due to an increase in one or more of the individual varieties of leucocytes. The commonest and most significant is the "inflammatory" type of leucocytosis, seen in many inflammatory and toxic conditions, where the increase is wholly or mainly in the polymorphonuclear neutrophiles.

Schultz has shown that brisk exercise of brief duration causes a moderate leucocytosis of the physiological type. The highest count obtained by him was 13,600. The leucocytosis was transitory, entirely disappearing after fifteen minutes. Schultz explained the increase in white cells on the supposition that the increased activity of the circulation carried to the periphery leucocytes which had been at rest in the great internal veins.

Our cases in no way agree with this description. In degree the white counts obtained far exceed Schultz' figures. In kind they show that the increase was made up of two varieties of cells, namely, the polymorphonuclear neutrophiles and the large mononuclears, the changes in other forms being relatively inconsiderable in their effect on the total white count. Of the two the increase in polymorphonuclear neutrophiles was proportionately much the greater. In other words, our cases showed a leucocytosis of the inflammatory type rather than of the physiological.

This disagreement is probably to be explained by the fact that the usual view is based on the study of comparatively brief and slight degrees of exertion—such as short runs or brief exercise with apparatus in the laboratory. Even though such exercise may produce extreme dyspnea and acute fatigue, it is quite a different thing from a twenty-five-mile race under conditions of the most strenuous competition. When it is stated that the leader in the race of 1901 covered the twenty-five miles in a trifle less than two and a half hours it will be evident that this is a study of extreme exhaustion rather than "exercise."

A closer correspondence exists between our results and those of F. G. Burrows in a study of the leucocytosis associated with convulsions. As in our cases, he found considerable increase in the total leucocytes, with preponderance of the polymorphonuclear forms, increase of the large mononuclears, decrease of eosinophiles, and the appearance of a few myelocytes; though in his larger series a few exceptions to some of these particulars were noted. He found evidence that the leucocytosis was the result of a double cause—first, a moderate increase of the physiological type (all forms alike), and second, added to the first, a leucocytosis of the inflammatory or toxic type. The former he found to be temporary, the latter more persistent. Where both causes acted together a higher total count would result than from the toxic cause alone, but the percentage of polymorphonuclear neutrophiles would be less than later when the physiological element had subsided, leav-

ing only the pure inflammatory form. From the study of a case of general paralysis with violent frenzy but no convulsions and of a healthy student after a short, violent run, he infers that muscular work alone is not capable of producing a leucocytosis of the inflammatory type. Our figures prove that this inference was erroneous.

The question then arises, May not the leucocytosis in our cases be due to a double cause: muscular work acting mechanically to produce physiological leucocytosis plus a toxemia from fatigue products acting chemically to produce toxic leucocytosis? It has been amply proven that brief exercise produces an increase in all the forms of white cells alike, and we may assume that the cases here studied had such an increase during the early part of the race. Yet at the finish their leucocytoses were always characterized by a disproportionate increase in the polymorphonuclear neutrophiles. Inspection of our tables throws but little light on this interesting view, and the conclusions reached by one of us as a result of the first year's work were not fully verified by the added experience of a second year.

The significance of the remarkably constant change in the relative numbers of small and large mononuclears we are unable to explain. The decrease in eosinophiles is seen in leucocytosis from many diseases. Its importance here is that it brings our cases more nearly into line with the conditions found in pathological states. Mechanical changes pure and simple might conceivably increase one form of cell more than another, but would hardly cause the entire disappearance or very marked decrease in one form alone. The same thing may be said of the decrease in mast cells.

The occurrence of a few myelocytes has also been noted in marked leucocytosis from various causes. Their occurrence, together with the forms intermediate between myelocytes and polymorphonuclear neutrophiles, is of interest in connection with the view that the myelocytes give rise to the polymorphonuclear neutrophiles by changes in the shape of the nucleus. It is probable that the increased activity of the circulation sweeps from the marrow these "unfinished" forms.

If further work of this sort is to be done we would suggest the advisability of successive examinations at short intervals after the race till the blood becomes normal, a suggestion which is emphasized by the fact that two men who ran but fourteen or fifteen miles and were examined several hours later still showed the blood changes in full severity. If possible one or more observations during the race should be made. It would at least be possible to study the effects of practice runs of different lengths.

REFERENCES.

- Cabot: Clinical Examination of the Blood. Fourth Edition.
Schultz: Deut. Arch. f. klin. Med., 1888, p. 234.
Burrows: Amer. Journ. Med. Sci., May, 1899.
Capps: Amer. Journ. Med. Sci., June, 1896.
Larrabee: Journ. Med. Research, January, 1902.

THE HEARTS.

BY RALPH C. LARRABEE, M.D., AND LAWRENCE W. STRONG, M.D.

In 1900 all men presenting themselves before or after the race were examined by the usual methods,

as was done by Williams and Arnold in the race of 1899. Owing to the noise and confusion, much difficulty was experienced in making accurate observations. Especially at the start this was the cause of nervousness on the part of the runners, which must be taken into account in interpreting the results. Many men were necessarily examined while standing, and this led to difficulty in getting satisfactory tracings of the percussion outlines. The recumbent posture ought always to be used. After discarding all unsatisfactory records, there remained ten cases upon which our study for 1900 was based.

Size.—Every heart before the race showed symmetrical enlargement to percussion, moderate in degree. At the finish there was invariably a further enlargement, moderate or slight in degree. Four showed general enlargement, two enlargement to the right, one to the left, one to the left and upwards and two upwards. In seven of the ten complete cases and in several examined only at the start there was visible bulging of the precordia. This was present at the start and was not affected by the contest.

Murmurs.—Before the start, out of eighteen men examined, three showed auscultatory abnormalities. One of these (M.) had a prolongation of the first sound, heard midway between the xyphoid and the apex, not transmitted and without accentuation of the pulmonic second. It remained unchanged at the finish. The heart was rapid and slightly irregular. We believe that the murmur was functional. In a second case (P. L.) there was marked enlargement to the right before the race, and there was also a short systolic murmur to the right of the sternum at the nipple level. Five minutes after the finish this murmur was barely audible, while the cardiac area had extended to the left. The third case was an old, experienced runner (McA.) who had recently recovered from influenza. Before the race he was nervous and excited, and had a temperature of 100.7° F. He had the usual symmetrical enlargement of the heart. The murmur was systolic, heard at the second left interspace and transmitted a short distance toward the apex. The heart's action was slightly irregular. After the race he was examined immediately, but no murmur could be heard, and the heart was regular. In but one case (T.) was a murmur detected at the finish which was not present at the start. This was systolic and heard over the pulmonic area. The man had walked the last nine miles and showed no fatigue when examined. These murmurs, like all of those heard in this investigation, were of slight intensity, and were soft and blowing in quality.

A variable, and in some cases a considerable, time elapsed between the finish and the examination of the chests, as the sphygmograph and blood tension tests were made first, but the men still showed general exhaustion and cardiac dilatation. In four cases the examination was immediate; the longest delay was a half hour.

In the race of 1901 the faults of the previous year's observations were corrected, especially as to the delay in auscultation at the finish, which has been held accountable for the absence of new murmurs. Fewer men were examined, with greater individual

care. Two and three days before the race several men were examined at their gymnasiums, and of these four finished, while several others afforded partial observations. The results obtained by inspection and percussion of the heart's area were the same as in 1900; there was always some enlargement before the race with further increase during it. Two (J. L. and H—ks) showed marked enlargement during the race; one (P.) showed moderate increase; but the fourth (McA.) showed little or none. All men were examined in the recumbent position, and great care was taken with the tracings. The results from percussion are certainly as accurate and significant as those obtained by auscultation. Of these four men one (H—ks) had no murmur either before or after the race; one (McA.) had no murmur at the start, but had a systolic murmur at the base on both sides of the sternum at the finish; the third (J. L.) had a soft booming systolic murmur, apical at the start and basal at the finish; the fourth (P.) showed at the start a systolic murmur over the whole precordial area. At the finish the first sound was noted to be impure at the apex, the abnormality being considered cardio-respiratory.

Several other men were examined both before and after the race with reference to heart sounds only. In a few of these systolic murmurs were heard both before and after the race, and in but one case was a murmur found at the finish which was not also heard at the start. This was systolic in time and was heard at the base. Exact figures as to the number examined cannot be given, as the record was lost in the confusion of the finish.

In 1902 four complete records were again made, while nine other men were examined for heart sounds only, both at start and finish. The four complete cases showed hearts that were symmetrically enlarged before the race and that underwent further enlargement during the race. There was no uniformity in the direction of the enlargement, either to right or left, and this observation holds true for all three years. The degree of enlargement during the race was slight.

Auscultation of the four complete cases, examined by the same observers both before and after the race, showed two men (H—ks and C.) without murmurs both at start and finish. The third (P.), noted to have a faint, soft, systolic murmur at the apex two days before the start, was without a murmur at the finish, while the fourth (J. L.), noted to have a slight impurity of the first apical sound at the start, had a systolic murmur at the finish. It would be unfair to regard this murmur as new-formed during the race; it was obviously an accentuation of the impurity heard before.

Of the nine men of whom we have no other record at the start than the statement of the examiner that he heard no murmurs, six showed murmurs at the finish. Of these three were cardio-respiratory, ceasing on holding the breath, and the other three were apical systolic murmurs, apparently developed during the race. There was no delay in auscultating at the finish. The murmurs were very slight in intensity.

In all three races some men were cyanotic at the finish, and others were pale. Bleeding from the mouth or nose did not occur. In 1900 a number

of the other men vomited, but only after taking food or water.

The enlargement of the heart before the race, invariably present in our cases, agrees with the work of other observers, and means hypertrophy, the result of training. It is to be compared to the hypertrophy of the peripheral muscles (which, it may be said, was not marked in these runners) and, far from being an abnormality, is probably essential to successful running.

The presence of so many systolic murmurs before the race (six out of eighteen cases) is more difficult to explain, and is wholly at variance with the results of Williams and Arnold, who studied this same race in 1899. They found no such murmurs in any of their cases. The discrepancy may perhaps be accounted for by the different conditions under which the examinations were made. In Williams and Arnold's cases the examinations were made several days before the race, and the examiners thus became acquainted with their men. The number was smaller, as was also the number of contestants, and consequently there was less excitement at the start when the final observations were made. In ten of our eighteen cases the first examination was made at the starting-point. The increasing fame of the event brought a greatly increased number of entries, and this, with the greater public interest, made much more excitement at the start than ever before.

We believe, therefore, that most or all of these murmurs before the race were due to nervous excitement. Similar murmurs have been noted by Morton Prince in candidates for the Boston Fire Department. When he examined men under circumstances calculated to produce nervous excitement, the murmurs were frequent, but when the excitement was reduced to a minimum they were rare. Out of our six cases showing murmurs at the start, the abnormal sounds had disappeared at the finish in four, and in one other the murmur was scarcely audible. Perhaps this was because at the finish the men were too much exhausted to be "rattled." Some of the murmurs may have been due to other causes, — the persistent ones possibly even to old valvular endocarditis, — but probably most of them were caused by nervousness.

We recognize that in attributing the murmurs to nervous excitement we are but stating the results of observations without adequately explaining them. How excitement produces the murmurs we cannot at present say. A discussion of the question would lead us into theories beyond the limits of this paper. We cannot, however, unreservedly accept Prince's view that they are due to mitral regurgitation from relaxation of the mitral sphincter.

After the race there was further increase in the heart area in sixteen of the eighteen cases. We attribute this to temporary acute dilatation. But why should the heart be dilated where the blood pressure is so remarkably decreased as it was in these cases? There are two possible answers. It is generally admitted that in brief exercise (or in the early part of continued exertion) the blood-pressure is raised. Darling has shown that, even after the comparatively brief exertion of a boat race, dilatation of the heart occurs. Stengel considers that the dilatation found in the presence of low blood-pressure repre-

sents, the failure of the heart to recover from dilatation that occurred in the early period of high tension. The other explanation is that the dilatation represents relaxation of the heart's muscular tonus as a result of exhaustion or "fatigue products."

In regard to the murmurs found after the race, as in these found before, our results differ from those of Williams and Arnold, who found systolic murmurs in eleven out of thirteen cases. Of our eighteen cases fully examined, but six had murmurs at the finish, and in four of these the murmur was also present at the start. Of the thirty or forty cases examined by auscultation alone, we found but four more who had a murmur at the finish only.

The cause of the murmurs heard after exercise is a matter of much doubt. We do not consider that our cases bear out the theory that they are always or usually due to regurgitation from the left ventricle consequent upon relaxation of the so-called mitral sphincter. The natural explanation of the discrepancy between our results of 1900 and those of Williams and Arnold was that too long a time had elapsed between the end of the race and the examination. They distinctly state that the murmurs were fugitive, often lasting less than a minute. This objection does not apply to our work in 1901 and 1902. The discrepancy may be partly explained by difference in weather, as well as by the difference in surroundings already referred to. Moreover it seems to us that their fugitive nature is opposed to the explanation as mitral regurgitation, for the strain had continued for hours and the murmurs often disappeared while the general exhaustion and cardiac dilatation persisted.

The lack of signs of engorgement of the lungs and the character of the sphygmograph records are opposed to the supposition of mitral regurgitation. The capricious occurrence of the murmurs in our cases and their somewhat variable locations suggest that no one cause accounts for them all. While we do not deny the possibility of slight mitral leakage we are unable in our cases to find evidences of it beyond the occurrence of murmurs in systole.

We found no clear evidences of dilatation of the pulmonary conus arteriosus, which some writers have offered as an explanation of the systolic murmurs at the base. But the recognition of comparatively slight degrees of this condition is at least difficult, and we would suggest the desirability of studies with the X-ray. Stengel believes that the systolic murmurs at the pulmonic area and apex are due to dilatation of the pulmonary conus arteriosus, and continues: "The murmurs at the apex may undoubtedly be due to mitral regurgitation, but I cannot convince myself that all found in this situation are of this nature. Some, I believe, are intraventricular; others, possibly cardio-pulmonary in origin." With this unsatisfactory statement we must at present be content.

The subsequent condition of the men we were unfortunately unable to follow. We received letters from the four men studied fully in 1901, and, except for a case of badly blistered feet, all were as well as ever in a day or two. So far as we know no one has ever suffered serious or permanent harm from this race. In fact the changes, so far as the heart is concerned, must be regarded as physiological.

REFERENCES.

- Darling: Boston Med. and Surg. Journ., Aug. 31 and Sept. 7, 1899; also June 6, 1901.
 Prince: Med. Rec. (N. Y.), April 20, 1899.
 Prince: Amer. Journ. of the Med. Sci., February, 1901.
 Stengel: Amer. Journ. of the Med. Sci., November, 1899.
 Williams and Arnold: Phila. Med. Journ., June 3, 1899.
 Larrabee: Boston Med. and Surg. Journ., Sept. 18, 1902.

KIDNEYS.

BY JOHN M. CONNOLLY, A.M., M.D.

In the three accompanying tables are given the results of the examinations of the urine for the three years 1900, 1901 and 1902. A few words in explanation of these tables are necessary.

METHODS.

The urine of each contestant from whom it was possible to obtain a specimen was examined. The urine was collected at Ashland just before the start and at the Boston Athletic Association Building as soon as it could be passed after the race. The examination was begun immediately and was completed as rapidly as possible, in order that all determinations might be made while the specimens were still fresh. The amount was measured, and the color, odor and reaction noted. The urea percentage was estimated by Squibb's ureometer. Albumin was tested for by both the nitric acid and the heat test, and sugar by Fehling's test, which was allowed to stand for twenty-four hours. All of these tests were made in every instance, and the specific gravity was taken in every case in which a sufficient amount of the urine was obtained.

Uric acid, chlorides and phosphates were quantitated in all those cases, nineteen in number, in which a specimen of the urine both before and after the race was obtained and a sufficient quantity remained after the performance of the other tests. The uric acid was quantitated by means of the centrifuge, by the ammoniacal argentic nitrate solution, after precipitating and removing the phosphates. The chlorides were estimated by titration with argentic nitrate, and in the year 1901 all the specimens both before and after the race were first titrated with argentic nitrate in the usual way. The organic matter was then removed by the Neubauer-Salkowski modification of Mohr's method, and titration with argentic nitrate again done.

The results here were interesting as showing the correctness of the rule which requires the subtraction of one cubic centimeter from the reading when the amount of argentic nitrate used amounts to 10 cubic centimeters or over. It was found that each cubic centimeter of argentic nitrate required when the organic matters were not removed corresponded almost exactly to $\frac{1}{10}$ of a cubic centimeter required after the organic matters were removed.

The phosphates were estimated by titration with uranium acetate, and for the year 1900 by the centrifuge also. For 1901 and 1902 the method by titration was chosen as being the more accurate.

The explanations already given apply to all the urines. In the year 1902 it was found possible, for the first time, to secure the twenty-four-hour amounts both before and after the race. This was done from three runners, and from one of these an additional twenty-four-hour amount was obtained

1900.	No. of Urine.	Amount in c.c.	Color.	Reaction.	Sp. Gr.	Urea, %	Uric Acid, %	Chlorides, %	Phosphates, %	Albumin.
H. H. P. C.	1	120 90 ¹	Normal <i>High Normal</i>	Neut. <i>Str. acid</i>	1.018 1.030	1.64 2.46	0.024 0.082	0.668 0.212	0.12 0.19	0 <i>St. trace</i>
T. M.	2	125 120	Normal <i>High Normal</i>	Acid <i>Str. acid</i>	1.028 1.027	2.58 2.08	0.085 0.024	0.704 0.670	0.17 0.15	0 <i>St. trace</i>
D. G. (?)	3	110 240	Normal <i>Normal</i>	Sl. acid <i>Str. acid</i>	1.026 1.021	2.90 2.40	0.082 0.018	0.708 0.273	0.14 0.30	0 <i>V. st. trace</i>
F. C.	4	128 90	Normal <i>High Normal</i>	Acid <i>Str. acid</i>	1.028 1.027	3.08 2.21	0.049 0.047	1.214 0.849	0.11 0.09	0 <i>St. trace</i>
E. C. E., Jr.	5	180 120	Normal <i>Sl. H. Normal</i>	Sl. acid <i>Str. acid</i>	1.027 1.026	2.71 2.40	0.085 0.024	0.789 0.304	0.125 0.15	0 <i>V. st. trace</i>
H. N.	6	120 60	High <i>High</i>	Acid <i>Str. acid</i>	1.029 1.034	2.40 1.89	— —	— —	— —	0 <i>St. trace</i>
T. J. H—ks	7	80 90	Normal <i>High Normal</i>	Acid <i>Str. acid</i>	— 1.024	2.96 2.46	— —	— —	— —	0 <i>Trace</i>
H. L. W.	8	120 90	Normal <i>High Normal</i>	Acid <i>Str. acid</i>	1.026 —	3.30 2.40	— —	— —	— —	0 <i>Trace</i>
J. L.	9	60 30	High Normal <i>High Normal</i>	Acid <i>Str. acid</i>	1.029 —	2.59 2.14	— —	— —	— —	0 <i>Trace</i>
J. J. Q.	10	90 60	High Normal <i>High</i>	Str. acid <i>Str. acid</i>	1.021 1.026	2.77 2.27	— —	— —	— —	<i>Sl. poss. tr.</i> <i>St. trace</i>
W. K. C.	11	90 30	Normal <i>Normal</i>	V. sl. acid <i>Str. acid</i>	1.020 —	1.64 2.77	— —	— —	— —	0 <i>St. trace</i>
L. B.	12 ²	80 120	Normal <i>Sl. H. Normal</i>	Acid <i>Str. acid</i>	— 1.021	2.77 2.65	— —	— —	— —	0 <i>V. st. trace</i>

¹ In these quantitative estimations Dr. F. T. Lewis, Austin Teaching Fellow, Harvard Medical School, gave valuable aid.
² After the race, in *italics*. ³ Completed 7 miles only.

1901.	No. of Urine.	Amount in cc.	Color.	Reaction.	Sp. Gr.	Urea, %	Uric Acid, %	Chlorides, %	Phosphates, %	Albumin, %
D.	13 ³	140 200 ⁴	Pale Normal <i>Pale N. sl. tur.</i>	Acid <i>Str. acid</i>	1.026 1.020	2.03 2.27	.117 .094	1.03 0.32	.0900 .1080	0 <i>1 1/2</i>
S.	14 ¹	120 125	Normal <i>N. sl. turbid</i>	Acid <i>Acid</i>	1.030 1.026	2.28 2.96	.085 .017	0.89 0.72	.1575 .0900	<i>1 1/2</i> 0
C.	15	60 65	Normal <i>Normal</i>	Acid <i>Str. acid</i>	1.020 1.015	2.52 1.45	.012 .023	0.78 0.44	.0235 .0338	0 <i>1 1/2</i>
K.	16	140 135	Normal <i>Normal</i>	Acid <i>Acid</i>	1.025 1.020	2.28 2.65	.063 .141	0.80 0.22	.0690 .2250	<i>1 1/2</i> 0
G.	17	40 65	Pale <i>Normal</i>	Acid <i>Str. acid</i>	1.026 1.020	3.06 2.90	— —	0.96 0.48	.0675 .1013	<i>1 1/2</i> 0
P.	18	75 180	Normal <i>Normal turbid</i>	Faintly acid <i>Acid</i>	1.025 1.020	2.74 2.08	.019 .023	0.90 0.49	.0675 .0890	<i>1 1/2</i> 0
DeV.	19	75 200	Pale <i>Pale</i>	Str. acid <i>Acid</i>	1.027 1.022	3.10 2.58	.128 .012	0.80 0.34	.1018 .1125	<i>1 1/2</i> 0
H—ks	20	90 75	Normal <i>Normal</i>	Acid <i>Str. acid</i>	1.022 1.022	2.90 2.65	.061 .012	0.84 0.37	.1350 .0450	<i>1 1/2</i> 0
P.	21	90 160	Pale <i>High Normal</i>	Sl. alk. <i>Str. acid</i>	1.025 1.022	1.96 2.02	.025 .012	0.89 0.27	.0225 .0450	0 <i>1 1/2</i>
F.	22	60 135	Pale <i>High</i>	Faintly acid <i>Str. acid</i>	1.018 1.027	1.51 2.40	.059 .108	0.78 0.38	.0235 .1300	0 <i>1 1/2</i>
E.	23 ³	70 140	Pale <i>Pale</i>	Faintly acid <i>Faintly acid</i>	1.020 1.013	2.21 1.70	.015 .006	0.74 0.60	.0658 .0338	0 <i>1 1/2</i>
J. L.	24	140 160	Normal <i>N. sl. turbid</i>	Acid <i>Str. acid</i>	1.020 1.016	2.22 2.14	.011 .029	0.68 0.17	.1012 .0788	0 <i>1 1/2</i>
McA.	25	35 110	Pale <i>Normal</i>	Str. acid <i>Str. acid</i>	1.027 1.016	2.40 2.27	— —	1.19 0.51	.0663 .1350	0 <i>1 1/2</i>
McD.	26	50 300	Sl. pale <i>Normal</i>	Acid <i>Str. acid</i>	1.026 1.208	2.31 2.28	— —	1.05 0.44	.0900 .2250	0 <i>1 1/2</i>
M.	27	180 125	Normal <i>Normal</i>	Acid <i>Str. acid</i>	1.025 1.024	2.15 3.03	— —	1.01 0.54	.0900 .1140	<i>1 1/2</i> 0

⁴ In these quantitative estimations Mr. W. E. Connolly, Harvard Medical School, gave valuable aid.
⁵ Ran only 18 miles. ⁶ Ran only 15 miles. ⁷ Ran only 20 miles.
⁸ After the race, in *italics*.

1902.	No. of Urine.	Amount in cc.	Color.	Reaction.	Sp. Gr.	Urea, %	Grams of Urea in 24 hours.	Uric Acid, %	Chlorides, %	Grams Chlorides in 24 hours.	Phosphates, %	Albumin.
C.	28	1,200 1,120 ⁹	Normal <i>High</i>	Acid <i>Acid</i>	1.027 1.030	2.65 2.02	31.80 22.82	.117 .017	.759 .243	9.11 2.75	.0966 .1013	0 <i>1 1/2</i>
H—ks	29	1,260 1,180	Pale <i>High</i>	Acid <i>Acid</i>	1.030 1.030	3.15 3.22	39.375 39.704	.081 .147	.907 .564	10.09 6.66	.0790 .1131	0 <i>1 1/2</i>
O'B.	30	1,225 1,120	Normal <i>High</i>	Acid <i>Acid</i>	1.021 1.023	2.07 2.27	25.602 26.424	.092 .077	.848 .443	10.94 4.96	.1060 .1013	0 <i>1 1/2</i>
	10	1,500	High	Acid	1.080	2.77	41.55	.099	1.063	15.78	.1125	0

⁹ After the race, in *italics*.

¹⁰ "30" one week after the race.

one week later. As the results for 1902 were in harmony with those for the two preceding years, the table for 1902 contains only the results of examinations made of these twenty-four-hour amounts.

RESULTS.

The most important facts learned by these examinations are summarized in the tables.

Quantity.—In most cases the quantity of urine passed after the race was quite small. The average time at which the small amounts given in the tables were passed was one and a half hours after the finish. Some of the contestants were able to pass urine almost immediately after the race. In most of these cases the quantity was rather large.

Color.—The color was in every instance higher after the race than it had been before the race. In several cases the difference was very marked. Many of the urines passed after the race were slightly turbid and a few slightly, but distinctly, smoky.

Reaction.—After the race the acidity, as shown by the intensity of the color given to litmus paper, was in every case markedly increased.

Specific gravity.—In many cases the quantity of urine secured after the race was so small that the specific gravity could not be obtained by the urinometers at hand. In the cases in which estimation could be made, there was no constant relative increase or diminution. The majority, however, showed relative diminution after the race.

Urea.—For 1900 and 1901 the percentages only could be obtained. In the majority the percentage of urea after the race was relatively diminished. Much more satisfactory are the results of the 1902 examinations, because in three cases the twenty-four-hour amounts were obtained. In two of these cases the urea was practically the same before and after the race, in one considerably diminished. It is worthy of note that in the one case in which the twenty-four-hour amount was obtained one week after the race the quantity of urea had risen markedly. It would be interesting to know if this rise is constant.

These results agree very well with the results from the researches of Fink and Wislicenus in their ascent of the Faulhorn, and also with the later work of Voit and of Parkes, who says that "there is no distinct increase in the excretion of urea after muscular exercise." There probably is no immediate increase after excessive exercise. I am inclined to think, however, that with the Marathon runners there is a later increase depending, as regards the time of its occurrence, upon the time when the men regain their normal appetite. In this connection it is interesting to see that in two cases in 1900, in which it was possible to follow up the urine, the urea percentage still remained below normal three days after the race, and both men declared that they had not yet (April 22, 1900) reached their normal appetite.

The results harmonize also with those of Dr. E. A. Darling in his study on the Harvard University Crews.¹¹ He well points out the agreement of these results with previously noted facts as follows: "Physiologists have proved that an increase in the urea elimination above normal limits is usually

caused by an increase in proteid digestion and not by an increase of muscular action."

Of course, these examinations and any conclusions based upon them are very unsatisfactory. If we could have the urines for two weeks before the event and for two weeks after, and could secure the whole twenty-four-hour amounts, results of absolute value might issue, but it is feared that this state of things will not soon obtain. Many of these men come from distant places to take part in the race, and usually leave for their homes as soon as possible after the race. And even those who live in the vicinity of Boston are not particularly impressed with the importance of these researches, and "with the best intentions" they, like college students,¹² sometimes forget, and some of the urine is lost. Only those who have had actual experience in the work know the difficulties in the way of a full and satisfactory examination of a runner, tired after a Marathon race.

It is unfortunate that of the three twenty-four-hour amounts, two had urea percentages relatively increased after the race. This is contrary to what was found in the majority of cases examined both in this and in the two preceding years.

If in the majority of cases the urea percentage is relatively diminished after the race, and the quantity for twenty-four hours is also diminished, as would seem to be the case, the results for total urea in the table for 1902 are probably exceptional. Of course, neither from three cases nor from thirty can inferences of any great value be drawn. The work, however, constitutes a beginning which may be elaborated.

Uric acid.—I expected the uric acid to be increased after the race. It would seem, instead, in the majority of cases, to be diminished.

Chlorides.—The chlorides were consistently diminished after the race. The results given in the table for 1901 are the most accurate, as especial pains with the chlorides were taken in this year, as already stated. It will be noted that after the race there is an average diminution of about 50% in the chloride percentages. The table for 1902 with its total twenty-four-hour quantities corroborates fully the results previously obtained.

Phosphates.—The phosphates apparently vary without law.

Albumin.—Albumin was absent from all but four of the urines before the race. Albumin was present after the race in every urine. The amounts varied as the tables indicate. It is of interest to note here that Dr. Darling found in the twenty-four-hour amounts several days after the boat races albumin "in 48 out of 83 specimens." "The amount," he says, "was never more than a trace." And it is his opinion that "the traces found in the twenty-four-hour specimens," after a race, "really represented a considerable amount of albumin passed in one urination after rowing, diluted with non-albuminous urine passed during the rest of the day."¹³

With a view to ascertaining whether this opinion is correct, the urines for 1902, in which the twenty-four-hour amounts were preserved, were saved with each urination in a separate vial. It was found

¹¹ Boston Med. and Surg. Journ., vol. cxlii, no. 10, p. 281.

¹² Darling: loc. cit.

¹³ Darling: loc. cit.

that in two cases the amount of albumin was greatest in the first quantity passed and rapidly diminished; but in one of the three cases the percentage in the second urination was a little more than in the first, and this in spite of the fact that the quantity of urine passed at this second urination was slightly greater than that obtained at the first. All the urinations for the twenty-four hours contained some albumin. It is probable, then, that it would be nearer the truth to say that the quantity passed at the first urination generally contains most albumin and that this is diluted with *less* albuminous urine passed during the rest of the day. I am satisfied that in the Marathon racers the albumin persists, in the majority of cases, for at least thirty-six hours after the race; but from two urines which I obtained in 1900 three days after the race, and from one urine passed one week after the 1902 race, albumin was entirely absent. The quick recovery is remarkable when attention is paid to the sediment found in these cases immediately after the race. The fact that in three years only four contestants had albumin just before the race after the training that most had undergone is also noteworthy in contrast with "the albuminuria in the urine of a large proportion of the squad under ordinary conditions of training" for the crews.¹⁴ Does running involve less strain on the kidneys than rowing?

Sugar.—Sugar was absent in all cases before the race. After the race a slight reduction of Fehling's solution was noticed in two urines of the year 1900. In both of these there had been no reduction on boiling, and the reduction was not visible at the end of eight hours, but was seen at the end of twenty-four hours. It was very slight and was probably not due to sugar.

Sediment.—Like the chlorides, the sediments were consistently alike.

In most of the urines before the race only a few squamous cells were found in the sediment. In a few of the sediments a rare calcic oxalate crystal was found, and in three a rare acid sodic urate crystal.

In the cases before the race which contained albumin, however, the sediments were alike in showing an exceedingly rare pure hyaline cast, a few leucocytes, a few small round cells and an exceedingly rare abnormal blood globule.

After the race every sediment contained large numbers of hyaline and fine granular casts, a few coarse granular and epithelial casts. There was in all cases more or less blood, normal and abnormal, free and on casts. The amount of blood usually varied directly as the amount of albumin. Brown granular casts were found rarely in many of the sediments, and calcic oxalate crystals, both primary and secondary, in the majority. Spermatozoa were found in several cases. Leucocytes were not many, and there were only a few renal cells free, though many were seen adherent to the casts. The sediments from the urines of several runners who completed distances of from only seven miles up to fourteen and eighteen differed in no respect from those of the contestants who finished. The urines of two of the bicycle riders detailed to accompany the runners also had sediments exactly like those of the runners themselves. In the specimens obtained

three days and one week after the race only a few squamous cells were found.

It would be a valuable supplement to these observations if the sediments from the urines of race horses could be examined after a Charter Oak meet or some similar event.

PHYSICAL CHARACTERISTICS.

It is interesting to consider briefly the general physical characteristics of the men who were successful in these contests. While it is difficult to detect any obvious practical value of Marathon races, in a general way they may be said to resemble the conditions which would obtain in war time during forced marches of small bodies of lightly armed troops. The analogy is closer than would at first appear, because the race represents not a single effort, but the final test of a long series of practice runs, and because many of the same contestants compete year after year. The length of the course and the speed maintained (in 1901 the winner's time for the entire distance was 2 hours and 29 minutes) would counterbalance the absence of uniform and accouterments. The first three or four men in each race showed, as a rule, the same general physical characteristics, as follows:

Height, medium or less than medium; weight, 110 to 140, and more frequently approaching the former than the latter extreme; chests, not unusually large, nor was the chest expansion very great; legs, of medium length; muscles, never remarkably hypertrophied, but always firm and free from fat; feet, usually large and broad, without evidences of compression in tight shoes; hearts, invariably enlarged, and proportionately more so than the slower runners. In street clothes these men recalled the privates of the French and Austrian rather than the English or German armies, and the traditional "long, lanky Yankee greyhound" was certainly conspicuous by his absence.

It has been asserted by military critics that in time of war mobility of forces is of the first importance. The Marathon races of the past five years prove that it is entirely possible to train considerable numbers of picked young men to develop speed far beyond anything hitherto obtained in modern armies, except in the very rarest instances. Whether this proven fact is of any practical value remains to be seen.

If we consider the speed at which the winners ran, the character of the roads, the frequency of hills and the oppressive atmospheric conditions, it seems marvelous that the human body can be trained to withstand so much with so comparatively little depression. The unpleasant results of longest duration seem to have been blisters on the soles of the feet. In the entire three years we neither saw nor heard of any serious, persistent after-effects, and it is yet to be proven that even these strenuous contests leave behind them any permanent injury.

A large number of men beside those whose names are affixed to the various sections have assisted in making these observations: In 1900, Drs. J. L. Frothingham, McCurdy, Meylan, Fulton, P. Thorndike and Professor J. Hough; in 1901, Drs. W. E. Faulkner, Franz, H. L. R. Crandon and W. H. McBain; in 1902, Drs. Frothingham, R. Hammond and Peters.

¹⁴ Darling: *loc. cit.*

MEDICAL TREATMENT OF INTESTINAL OBSTRUCTION.¹

BY THOMAS F. HARRINGTON, M.D., LOWELL, MASS.

THERE are perhaps fewer more serious conditions to which the human subject is liable than those which confront the physician and surgeon in a case of intestinal obstruction. All his resources are called into action, and upon his ability to see clearly, and to act promptly, yet not hastily, will often depend the outcome of the case. To point out some of these conditions from a medical standpoint will be my endeavor in the ten minutes allotted to me. Briefly, the causes of intestinal obstruction which can be properly classified as medical affections are impaction of fecal matter, foreign bodies in the canal, intussusception and neoplasms.

There are certain symptoms more or less characteristic of intestinal obstruction: these are constipation, pain in abdomen, distention and vomiting.

The pain usually sets in early and may come on abruptly. At first it is colicky, then continuous and very intense. An important fact in relation to the pain is the exact seat of its beginning, for upon this may depend the differential diagnosis. After the trouble has existed for a short time the importance of this point is lost. Therefore make careful inquiry from the patient or his family as to the location of the first pain. In simple intestinal obstruction the onset of pain is gradual, often expressed by the patient "as if something had given away, like an attachment or adhesion." It is paroxysmal, mild and infrequent at first, becoming violent and oft repeated as the obstruction becomes more complete. The abdomen at first is not painful to percussion and palpation, but becomes so later. Acute pain in the abdomen is not in itself a sufficient sign for surgical interference. It is well to eliminate hysteria and also abdominal pain with muscular rigidity so often seen in pleurisy or pneumonia in young children. The pain in abdominal affections should not be too readily treated with opium, as much valuable information may thereby be lost.

Constipation is a very common symptom in all intestinal obstructions. The constipation may be due to chronic intestinal catarrh, disease of brain and spinal cord, injury to abdominal walls by blows, or by abdominal effusion, hysteria, or, in fact, any injury or disease which interferes with the nerve force of the intestines or abdominal walls. There may be a daily evacuation of the bowels and yet have obstruction. This is explained by the fact that the contents of the smaller bowels being fluid or semi-fluid works its way through the mass in the large intestines, and the contraction of the sphincter ani muscle keeps the lower two inches free from accumulations.

Vomiting in intestinal obstruction commences early, and is a constant sign. At first the contents of the stomach are ejected, later greenish and bile-stained fluids, and finally when the obstruction becomes complete, a brownish and black fluid with a distinct characteristic fecal odor.

The amount of distention depends upon the seat of the obstruction and upon the presence of peri-

tonitis. The distention is most marked in obstruction of the large intestines; it may be slight or absent in obstruction of the small intestines.

In acute intestinal obstruction the sudden onset, the pallid, anxious face, sunken eyes, pinched features, cold clammy skin, feeble, rapid pulse, normal or subnormal temperature, dry, parched tongue and lips, characteristic odor of the breath, high-colored, scanty urine, — all form such a complete picture that an error in diagnosis seems unpardonable.

In obstruction due to fecal impaction there is usually a history of a long standing constipation, with frequent discharges of mucus. There may be retention of feces for weeks without marked symptoms. The general health becomes impaired, and gradually the obstruction grows more marked, until a distinct soft movable mass can be felt, usually in the colon or cecum. This tumor may be as large as a fetal head, and is frequently mistaken for an ovarian or other tumor, or even for pregnancy. The patient complains of vertigo, headache, ringing in the ears, faintness, etc., pain in the back, groins, genitals and extremities, he is also very irritable and fretful. A digital examination of rectum and vagina should be made in all such cases. If the case is neglected, abdominal pain, nausea and often vomiting follow, and finally the well-marked signs of intestinal obstruction develop, with all its consequences.

In obstruction due to foreign bodies in the intestines the history of the case is most important. Often there is an account of the person, usually a child, having swallowed a marble, coin, woolen fibers, needles, etc. Young girls and pregnant women often develop a morbid appetite for chalk, magnesia, lime, etc., which if long continued may be the cause of stony concretions or enteroliths forming in the intestinal canal sufficient to cause obstruction. These are usually found in the cecum or large intestines, and are most common in young and middle-aged people, rarely in the old. Gallstones escaping from the gall bladder into the intestines is not an infrequent cause of intestinal obstruction. Small ones may escape unnoticed in the feces, but if there is a slight constriction in the canal, or if the stones are numerous or large, an obstruction results, with all its consequences. This form of obstruction is four times as common in women as in men, and usually occurs in people over fifty years of age. The passage of foreign bodies through the intestinal canal is irregular, that is, quick at one portion and slow at another, inflammation arising and subsiding, impaired health, emaciation, cachectic appearance, signs of partial closure of the bowels and repeated attacks of inflammation, especially about the cecum. In the case of gallstone obstruction there is a history and evidences of disease of liver, and attacks of hepatic colic. The attack comes on with colicky, gripping pain soon followed by violent agony; vomiting begins at once and is constant, bile first, then fecal matter; pulse small, wiry and frequent; belly is retracted, features pinched, extremities cold, much prostration and collapse.

Obstruction due to intussusception occurs most commonly in children under two years of life. There is a sausage-like tumor in the transverse colon, and usually a rectal examination will confirm

¹ Read before the North Middlesex District, Massachusetts Medical Society, Dec. 17, 1902.

the diagnosis. The symptoms are sudden pain, colicky, intense and paroxysmal, soon becoming constant;—at first, pressure on abdomen gives relief, but peritonitis with tenderness sets in in a few hours;—vomiting early but not bloody or fecal for two or three days; diarrhea with bloody mucoid discharges, ten to twenty-five a day, and is fairly characteristic; much distention and tenesmus. The invaginated bowel may slough off and thus save the life of the patient, or the inflammation may become chronic and finally result in complete obstruction. The tumor is most noticeable during the pain.

In the treatment of the conditions of intestinal obstruction described much depends upon the history of the case and the stage of the disease when first seen. Often inquiry will bring out some fact suggesting the cause of the obstruction; for example, previous attacks suggest bands resulting from a peritonitis or a kink in the bowel, emaciation suggests cancer, or a previous ascites suggests a tubercular stricture.

Much information may be obtained in cases of intestinal obstruction by auscultation and percussion of the abdomen. When the stenosis becomes marked the distended bowel can be seen and may be a guide to the seat of the obstruction. Auscultation will establish the presence of intestinal peristalsis, thus eliminating paralysis in the diagnosis. Percussion will show the presence of gas in the abdominal cavity by the absence of the hepatic and splenic dullness, thus indicating a perforation of the intestines. The digital examination of the hernial rings should never be neglected in cases of abdominal pain.

In cases where foreign bodies have been swallowed *do not give castor oil*, as the increased peristalsis set up may cause more injury to the intestinal walls. Give oat meal, unbolted flour, corn meal or mashed potatoes. If the foreign body can be felt through the abdominal walls await its ejection. Examine the rectum frequently, as the foreign body often lodges there. In intussusception it is best to chloroform the child, lay it on its back, and slowly inject one or two gallons of warm water into the rectum. The height of the column of water should not exceed ten feet in an infant, or twenty feet in an adult. The rectum is capable of holding six quarts of water. Large enemata should always be tried before advising surgical interference. The use of bellows in inflating the rectum is not as safe as distention by water. In obstruction due to impacted feces the use of opium is not contra-indicated. Often the narcosis produced will relax the bowels sufficiently to allow the spontaneous evacuation of the mass. After pain, tenderness of the belly, or any other evidence of peritonitis subsides, it is safe to give castor oil, calomel or repeated enemata of warm water. None of these should be used until all inflammation subsides. Often the mass is so readily felt that gentle taxis will move it along. An empty rectum is no evidence that the obstruction is not due to fecal accumulations.

Purgatives and irritating enemata must not be given in cases of intestinal obstruction. The treatment *par excellence* is opium in small doses pushed until the vomiting, pain and tenderness subside. The stomach should be washed out three or four times

a day. For tympanites turpentine stupes and hot applications are serviceable. Surgical interference is warranted inside of three days if symptoms do not abate. Support strength of patient by concentrated and nutritious food, and with stimulant if necessary. Intestinal distention may be tapped if extreme. Taxis is often helpful in moving an impacted mass. Blood examination is of little value in making a diagnosis in intestinal obstruction, unless malignant disease, appendicitis, peritonitis or hemorrhage is present.

Prognosis depends very much upon the time which has elapsed since the first symptom. The duration varies, average period is death in six days. The nearer the obstruction is to the pylorus, the more rapid the death. In stricture or fecal impaction and chronic intussusception patient may live for weeks or months.

There remains one class of intestinal obstruction which is usually considered as belonging to the surgical side, yet which is, I think, fully if not more so a medical class than any yet mentioned. I refer to those cases of obstruction caused by cancer or other incurable diseases. While it is probably true that mechanical disturbances call for mechanical treatment, that is, surgery, yet the first object of the surgeon and physician should be the betterment of the patient. Good surgery is the degree of benefit afforded the patient by the operation, and not the ability to perform successfully the work undertaken. Is the life prolonged by the surgeon as happy or as free from pain as the life offered by the physician, even though the latter be shorter? Is surgical interference warranted in an intestinal obstruction due to tubercular bands when the lungs and peritoneum are studded with tubercular nodules, or for an obstruction due to cancerous growth when the other organs are known to be deeply involved? Have the results of surgical interference been so beneficial that the physician is justified in transferring his patient to the surgeon? Statistics on these points would suggest a negative answer. At the Massachusetts General Hospital in the years 1890 to 1900, 77 cases of cancer of the intestinal canal were operated upon by the various surgeons connected with the hospital. Thirty-six per cent died within one week; 19%, in one to four weeks; 18%, in one to six months; 5%, in six to twelve months; 11%, in one to two years; 5%, in two to three years, and 3% still living. Thus 54% died within a month; 72%, within six months, and less than 30% had life prolonged, and, according to the written accounts furnished by the friends of these patients, the life prolonged was one of terrible suffering. These figures in detail are more convincing even than in the aggregate.²

In the question of exploratory laparotomies the physician finds very little to warrant him in endorsing this short road to knowledge. Of 213 such operations at the Massachusetts General Hospital during the years 1890 to 1900, there were but 18 cured, with 87 deaths, and 75 failures to relieve the existing suffering. With the facilities offered by modern medicine for aiding the physician in making a diagnosis, namely, blood count and blood tests, toxin treatment, as well as Röntgen rays, it

² Boston Med. and Surg. Journ., Dec. 26, 1901. — Dr. R. H. Fitz.

is but logical to expect that the surgeon must work with the physician for his diagnosis. Each should supplement the other, not supplant him. The time will never come when hygiene and surgery, one to prevent and the other to cure, will represent all there is in medicine. To-day, as never before, exists a hard-and-fast line between the physician and the surgeon. Each are as distinct and separate as any specialties more generally recognized, and on account of the wider field of each, little or no true progress in medical science tending to the betterment of mankind can result from the absorption of one by the other. In the case of intestinal obstruction each case should be closely examined by both physician and surgeon, and no case should be operated upon except for the purpose of curing disease or relieving suffering with the reasonable assurance of a cure. Never should the operation be for diagnosis only. Every other department of science and art makes the division between the two branches. Already it is being recognized in this country in medicine, as it has always been recognized in Europe, and we owe it to our patient, our profession, and ourselves that we do not delay longer in this line of progress. No legitimate argument exists, especially in large cities, for combining the two duties. A division of duties will bring a union of advantages to both, and to the patient. Not less, but more surgery will result, surgery which will not be the last resort in a hopelessly delayed case, but rather an early opportunity for the best results, a factor in itself sufficient to materially alter the mortality rate now so high in intestinal obstruction.

Medical Progress.

PROGRESS IN THORACIC DISEASE.

BY JOHN W. BARTOL, M.D.

AN EARLY SIGN IN PLEURISY WITH EFFUSION.

PRZEWALSKI¹ has noted as a very early sign in 19 cases (14 serous, 5 purulent) a readily demonstrable though not very obvious narrowing of the intercostal spaces on the affected side, with a marked increase in the sense of resistance. He considers it due to a reflex contraction of the internal intercostal muscles analogous to the contractures of the extremities in certain cases of joint inflammation.

TREATMENT OF PLEURISY WITH EFFUSION.

Delafield² supports the practice of immediate aspiration in all cases of pleurisy by the tabulation of 200 hospital cases in which this procedure was followed; in the first 82 drugs were also given, but in the others, single or repeated aspiration was the only treatment. The quantity of fluid varied from 100 cc. to 3,500 cc.; those with bloody serum (25 cases) or with turbid serum (18 cases) did as well as those with clear fluid. In more than half the cases the duration of the pleurisy before aspiration was 30 days or under, and within four weeks after aspiration 169 were completely cured. In 142 cases

fluid was withdrawn only once, and in only 4 cases was the maximum of four times reached.

In private practice the results were even better.

SEROUS PLEURISY OF THE MEDIASTINUM.

Four supposed cases of this rarely recognized condition are reported by Chauffard³.

The most characteristic sign is a vertical band of dullness close to the vertebral column on either side, extending, perhaps, to the level of the lower angle of the scapular; in three of his cases a needle inserted close to the column withdrew a small amount of fluid and confirmed the diagnosis. The course may be entirely benign without extension, but there is apt to be an associated diaphragmatic pleurisy which will give a right-angled figure of dullness, and often an extension to the general pleural cavity. The collection of fluid within the mediastinum may be sufficient to cause marked dyspnea and signs of cardiac collapse.

PRESSURE OF PLEURAL EFFUSIONS.

As a sequence to his studies of intrapleural pressure in pneumo-thorax, Bard⁴ has made detailed investigation of methods and results in cases of effusion, serous or sero-fibrinous. His apparatus consists essentially of a glass tube connected with the trocar by rubber tube, and thus capable of serving either as siphon or when elevated as manometer tube. Very full directions are given for avoidance of errors and correction of those unavoidable. The most important results of his study are to show that, contrary to general opinion, the surface pressure in effusion is, during quiet respiration, always negative during inspiration and almost, if not quite always, during expiration; experiments on the rabbit show that it is impossible to create a positive pressure by injection, the excess of fluid being immediately absorbed, and if even the slightest positive inspiratory pressure is created by use of an elastic sac within the pleural cavity, the animal immediately succumbs; a fluid effusion, in distinction from pneumo-thorax, depends entirely on its volume for its effect on the lung; careful study of intrapleural pressure gives valuable information as to the state of elasticity of the lung and as to its degree of extensibility, possibly also as to encystment or freedom of the fluid. Aspiration by use of siphon is to be recommended because it enables one to stop the flow at the establishment of physiological relations, that is, when the pressure in forced inspiration is feebly negative.

BACTERIOLOGY OF EMPYEMA.

Withington⁵ has tabulated a series of 135 cases examined to determine the etiological organism, and draws, amongst others, the following conclusions, namely, that while the majority of cases are metapneumonic, it is not safe to predicate as to the variety of pneumonia from the organism present in the exudate. Streptococcus, for example, either alone or in association with one or more others appears more frequently than any other, but is equally suggestive of lobar, lobular, or influenzal pneumonia, or phthisis with mixed infection. Fur-

¹ *Centralbl. f. Chir.*, No. 14, 1902.

² *Am. Journ. Med. Sci.*, December, 1902.

³ *Presse Med.*, April 16, 1902.

⁴ *Rev. de Med.*, Nos. 3 and 4, 1902.

⁵ *Boston Med. and Surg. Journ.*, Nov. 6, 1902.

thermore, streptococcus in the meta-pneumonic cases seems of no worse import than lanceolatus, but when originating in suppurative or pyemic conditions outside the chest, it is probably of more virulent type, with bad prognosis. The particular organism present, if a pure culture, should have less weight than the general symptoms in determining the need of operation. If the first fluid aspirated be a clear serum containing streptococci or pneumococci a gradual development of pus can usually be forecast, but there is a possibility of later infection from within the lung even when the early tapplings are sterile.

NITROGEN EXCRETION IN PNEUMONIA.

Cook⁶ was led to pursue the study of the relation of nitrogen excretion to resolution, in the hope that in cases of delayed resolution some line of treatment would be found to promote absorption. In this hope he was disappointed, but his results are of marked interest. Assuming that in the involved lung is stored from 500 to 1,000 grms. of exudate per lobe, the absorption of which would be quite accurately indicated by the daily amount of nitrogen in the urine, he found that in the average favorable cases following the initial chill for a day or two there is a nitrogen output below normal, corresponding probably to the storing of the exudate, and beginning with the third day or so, a gradual rise in the output which reaches its maximum in perhaps two days, and then, if the lung remains clear and there is no further involvement, rapidly returns to normal *pari passu* with disappearance of physical signs.

In the cases of delayed resolution quite a different picture was presented. One case, with but one lobe involved, and temperature normal after the eighth day, but still showing signs of consolidation on the twenty-fourth day, excreted during the first thirteen days a surplus amount of nitrogen which would represent the weight of exudate in four consolidated lungs; and a like amount was secreted in twenty-four days by another patient who still showed signs on the sixteenth day. In a case ending in empyema, with a flat note over chest on the seventeenth day, the nitrogen excretion was about normal, whereas in every delayed resolution with flatness nitrogen was much above normal, a suggestion for differential diagnosis. The conclusion is reached that in delayed resolution there is not "a passive *status quo*, waiting for weeks to be carried away, but a continually progressing cycle of formation, liquefaction and absorption of pneumonic exudate," a condition properly spoken of in the long-continued cases as chronic pneumonia. Explanation of defervescence and drop in leucocytes in these cases must be deferred till more is known about the anti bodies.

In the normal cases a probable causal relation between leucocytes and resolution is shown by the parallelism between the leucocytosis curve and the curve of nitrogen excretion.

PRODUCTION OF RESPIRATORY SOUNDS.

Marek⁷ describes a number of interesting and apparently conclusive experiments made with tubes both stiff and yielding; lungs within and without the body; domestic animals living and dead, with

trachea severed and unsevered; tuning forks and other accessories.

As a matter of acoustics, he seems to prove in the first place that the lungs, whether expanded or collapsed, do not modify *pure tones*; while the so-called *murmur*, on the other hand, is made lower and stronger if ausculted through expanded lungs with patent bronchi, and remains unchanged if ausculted after the bronchi have been injected with plaster. Moreover the lungs with patent bronchi, so long as they contain air, transmit tones and also murmurs better than a solid organ like the liver, but if the air be pressed out of the lungs they transmit less well than the liver.

To show the bearing of these findings he then pictures the respiratory tract as a musical pipe with multiple branchings, the note of which is created by the to-and-fro current of air through the glottis, while the final tone represents a combination of the ground tone with the many over-tones furnished by the system of resonating tubes. This combination is the bronchial or glottis tone (not the vesicular murmur), and will or will not be transmitted to the ear ausculting over the lungs, according as the bronchial branches in the vicinity are large enough or too small to transmit the sound waves; thus in ausculting the larger domestic animals he was able to hear a vesicular murmur throughout the lungs, while the bronchial tone was heard only in the neighborhood of the larger bronchi.

Further proof of the independence of vesicular and bronchial breathing sounds was furnished by experiments on dead and living animals with severed trachea, showing the impossibility of their having the same origin.

If the vesicular murmur is not a transmitted tracheal sound it must originate within the lungs, and the most natural explanation of its causation is that it represents the vibrations set up by the stenosis existing at the termini of the bronchioles in the infundibula. The relative slowness of the air current makes the vibrations less rapid, and the result is a low-pitched tone which is strong enough to reach the ausculting ear, because many of the infundibula are in the superficial part of the lung and produce in combination a sound loud enough to be transmitted to the surface of the body. The expiratory murmur is simply a combination of glottis sound with added resonance.

Bronchial (tubular) breathing is dependent on the glottis vibration, as shown by laboratory acoustics and demonstrations on dogs healthy, and with pneumonia. In the solidified lung the walls of the smaller bronchi become less yielding, and the tracheal sound with its over-tones is more clearly transmitted to the ausculting ear; if the bronchi are plugged, however, the lung tissue becomes a very poor transmitter of sound. With lungs normal, the bronchial character will predominate if the tracheal sound is so intensified or the intervening lung tissue so thin that the resonating quality is not too much weakened by the yielding walls of the smaller bronchi. Amphoric breathing and metallic tinkle are simply further modifications of resonance due to cavity or pneumo-thorax. The production of râles is also theoretically discussed.

Hoover⁸ reports a clinical case which supports in a

⁶ Johns Hopkins Hosp. Bull., December, 1902.

⁷ Dent. Med. Wehr., Nos. 34 and 35, 1902.

⁸ Journ. Am. Med. Assn., Sept. 27, 1902.

striking way certain postulates of the above theories. An old man in the early stage of pneumonia (high pitched percussion, râles, respiration not bronchial) was seized with recurrent spasms of very violent hiccough. During these spasms auscultation over trachea showed no respiratory sound whatever, while everywhere over the lungs was heard a loud respiratory murmur of vesicular character, and over the infiltrated area during inspiration, râles were plainly detected.

BACTERIOLOGICAL EXAMINATION OF SPUTUM.

Papers by Smith and Lord respectively,⁹ covering methods and results, bring out the essential value of thorough examination of the sputum not only in cases where physical examination is inconclusive, but also in those where diagnosis can apparently be established by the clinical signs. Signs pointing to definite changes in chest or abdomen may prove on bacteriological examination of sputum to have been entirely misleading, and correct diagnosis be established by the presence or absence of certain of the familiar organisms. Thus cases suggestive of typhoid and appendicitis were shown to be early pneumonia; a supposed pneumonia with negative sputum proved to be infarct; in a case of phthisis with pneumonic complication, a relatively favorable prognosis was made (and later justified) on evidence that the solidification was probably of influenzal origin; a case originally considered phthisis was later shown to be chronic influenza.

Furthermore, influenza probably exists endemically to an extent not hitherto suspected, manifesting itself in acute form and also in types simulating ordinary chronic bronchitis, bronchitis with asthma or pulmonary tuberculosis, Pfeiffer's bacillus evidently persisting in some instances for years in practically pure culture.

AUSCULTATORY PERCUSSION.

Abrams¹⁰ has found previous methods, including the use of the phonendoscope, inaccurate and misleading, but after several years' experience with a maneuver of his own, he is led to recommend it as being of marked value either in topographical percussion, or for determining the density of the lungs. It depends on the transsonance of tissues lying between the point of percussion and the ear. The clavicle, sternum, ribs, or vertebræ are directly percussed by finger or hammer with continuous blows of uniform intensity, while the small chest-piece of the stethoscope is carried toward the borders of the organ in all directions. Relative transsonance of the apices may be determined by ausculting first one and then the other while percussing a prominent vertebræ or the manubrium. The right auricle and the left ventricle may be outlined on the dorsal surface if the patient is erect, with body slightly inclined backward. The upper liver border, the splenic outline, and the lower border of the stomach can all be readily demonstrated in individuals whose bones are not too well padded to serve as satisfactory pleximeters. For determination of the lower liver border, he clings to the manoeuvre of approximating the surface of the

liver to the abdominal parietes by having the patient bend backwards as far as possible, and then percussing in ordinary way.

COLLAGOL INTRAVENOUSLY IN ULCERATIVE ENDOCARDITIS.

Because it may possibly do good, and not because it has been helpful in the two cases treated by him, Manges¹¹ advocates further trial of Credé's method, which has been reported by other observers as favorably influencing the course of this affection in a few cases. But, as even these cases were somewhat open to question, and in his own the only effects were ill (mycotic aneurisms and painful thrombosis), Manges concedes that the ideal treatment is still to be discovered.

MOBILE HEART.

Braun¹² sounds a note of timely warning against ascribing too much importance to the existence in any individual of a heart which shows even quite a wide range of position as compared with the average limits of movability. It has become more or less the fashion to explain a variety of functional cardiac disturbances on the basis of a coincident cardiopertosis; this is rarely, if ever, the true cause, which must be further sought for in organic changes in the heart, or assumed to be reflex manifestations of more remote conditions.

A SIGN SUGGESTIVE OF ANEURISM.

Dorendorff¹³ premising that, as the diagnosis of aortic aneurism still remains in obscure cases, a difficult one and even the x-ray examination may be misleading, every suggestive sign, even if unreliable, may be a confirmatory aid and consequently welcome, — calls attention to the frequency with which, in aneurism of the arch, the left supraclavicular groove is obliterated or even bulges, and the left external jugular is obviously fuller than the right. The anatomical reason lies simply in the compression of the left innominate vein as a result of the dilated arch. A mediastinal tumor may have the same effect, but dilatation in cases of aortic insufficiency is apparently seldom sufficient to effect compression.

PULSATION IN SECOND LEFT INTERCOSTAL SPACE.

Gibbes¹⁴ reports a case which seems to make untenable the position still held by some writers that this sign is caused by systole of the left auricle. The clinical signs were those of mitral stenosis and insufficiency, with a presystolic pulsation visible during expiration in second left intercostal space over an area one inch in length, beginning two and a quarter inches from left border of sternum. The thorax was transfixed postmortem by a long pin piercing the second left space at the junction of third costal cartilage with its rib. On removal of the sternum, the conus arteriosus of right ventricle extended well into the second left intercostal space, and was transfixed by the pin one and a half inches from the interventricular groove and one inch below

⁹ Boston Med. and Surg. Journ., Dec. 18, 1902.

¹⁰ Med. News, Nov. 8, 1902.

¹¹ Med. News, Dec. 13, 1902.

¹² Centraltbl. f. Inn. Med., Aug. 30, 1902.

¹³ Deutsche Med. Wehr., Nov. 31, 1902.

¹⁴ Edin. Med. Journ., September, 1902.

the highest point of the ventricle. The left auricle and its appendix were not visible. The presystolic time of the pulsation was thought to be due to asynchronism in the rhythm of the ventricles.

MULTIPLE SEROSITIS.

Under this caption Kelly¹⁵ discusses the type of obliterative pericarditis having as symptom-complex morbid changes in other tissues and organs, "notably pleuritis, peritonitis, perihepatitis, nutmeg liver, red atrophy of the liver, cirrhosis of the liver, etc." This combination has been described by various observers under different names, among which the most portentous is that of Pick, "pericarditic pseudocirrhosis of the liver," and in the category should be included cases of "zucker-gussleber" ("iced liver") of Curschmann. Altogether 39 cases are tabulated, and from the tabulation two important facts are summarized: (1) That although all the cases presented ascites as the striking clinical feature and revealed obliterative pericarditis at the necropsy, yet the organ that we might presume to be most at fault—the liver—presented far from identical lesions in the different cases; (2) That in all the cases more than one serous membrane, and in some of the cases all the serous membranes were diseased. The variety of tissues in differing combinations which may be involved create a varying picture from both anatomical and clinical point of view. The inflammation set up by organism or toxin may be primary in pericardium, pleura, or peritoneum, involving in turn one or more of the neighboring tissues, "a distinguishing feature of the lesions being the development of thick fibrous, almost cartilaginous masses of connective tissue that encase, compress, and often distort the organs and give rise to an appearance suggesting confectioner's icing, whence the designation "iced liver." The striking clinical feature is ascites not associated with edema of extremities, but of chronic and recurrent type, thus differing from the type in uncomplicated hepatic cirrhosis.

The origin of the ascites is probably somewhat different in different cases according to site of chief anatomical changes, but is assumed to be, in the majority of cases, the result of peritonitis and perihepatitis creating a *locus minoris resistentiæ*, which first manifests the sensible evidences of an impeded circulation increased as a rule by the associated pancarditis; further increase in the ascites will be caused by contraction of the newly formed connective tissue of the liver capsule, and changes in the hepatic tissues may be brought about by the original irritant or by congestion. Ascites in cases where changes in the peritoneum are absent or slight is probably the result of combined cardiac insufficiency and the associated hepatic congestion.

Diagnosis must rest on careful differential consideration of past occurrence of serous inflammation, the existence of obliterative pericarditis, and the exclusion of ordinary forms of cirrhosis of the liver.

CONGENITAL PULMONARY STENOSIS.

Burke¹⁶ was able to study postmortem three

¹⁵ Am. Journ. Med. Sci., January, 1903.

¹⁶ Zeit. f. Heilkunde, May, 1903.

cases in young adults who had presented the classical signs during life, and in all of whom the diagnosis was verified by autopsy. What he especially concerns himself with is the significance of accentuation of the second pulmonic occurring as an associated sign. This has been generally considered as significant of open ductus Botalli and justifying diagnosis of the same as additional defect, but a tabulation of reported cases of pulmonary stenosis shows that in the 14 in which there was distinct accentuation of second pulmonic, ductus Botalli was closed, whereas in the three cases in which open ductus Botalli was the only complication the second pulmonic was either weak or absent; on the other hand it is shown that in the great majority of cases with accentuated second pulmonic the foramen ovale is open, and also the striking fact is brought out that in many of the cases, including the author's own, the deformity of the pulmonary valve was such as to make it impossible for an accentuated sound to have originated at the orifice, and accentuation in such a case—provided that retraction of lung borders leading to apparent accentuation is ruled out—must be due to one of three causes: (1) transmission of the aortic sound; (2) distention of the walls of the pulmonary artery; (3) contraction of the hypertrophied walls of the right auricle. The first two are ruled out on absence of evidence; the third seems likely in light of the fact that the contraction of the normal auricle is accompanied by a faint sound, and it is reasonable to expect this to be increased by the hypertrophy due to open foramen ovale.

In other cases where the valve curtains are intact, as in stenosis of the conus, an accentuation of the second sound is assumed to be the result of heightened tension in the pulmonary circulation, due to back pressure from right to left auricle through the foramen ovale.

Early cyanosis may be due to mixing of blood currents; terminal cyanosis is significant of failing right ventricle. A presystolic murmur in pulmonic area is probably due to cross currents through the foramen ovale. Although an accentuation of second pulmonic might be caused by open ductus Botalli, the cases in which the caliber of the vessel is large enough to cause sufficient back pressure are extremely rare. The frequency with which phthisis occurs in cases of pulmonary stenosis are probably due not primarily, as is generally held, to this condition, but to the hypoplastic aorta so often associated in these cases of faulty development, which results in deficient blood supply to the lungs.

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-SEVENTH ANNUAL MEETING, HELD IN ALBANY, JAN. 27, 28 AND 29, 1903. HENRY R. HOPKINS, M.D., OF BUFFALO, PRESIDENT.

FIRST DAY. — TUESDAY, JAN. 27.

PRESIDENT'S INAUGURAL ADDRESS.

DR. HENRY R. HOPKINS of Buffalo delivered this address. He sketched the history of the society

and expressed the conviction that an important feature of its organization was its delegate system. The abandonment of the Code of Ethics was referred to as a step which had been far-reaching and most salutary in its influence, being virtually a confession on the part of the society that it had erred in the past and a declaration that in the future its members intended to adhere more closely to the requirements of the State laws. The speaker then discussed the proposed bill to register trained nurses in this State, and advised that the society give this movement its support. He was strongly in favor of establishing the degree of "D.P.H.," Doctor of Public Health, this degree to be conferred upon those who had successfully followed a prescribed course in hygiene and sanitary science. With regard to the efforts that had been made to unite the medical profession in this State, Dr. Hopkins said that the encouragement afforded by the reorganization of the American Medical Association on a broader platform had prompted the society to make overtures towards the resumption of diplomatic relations with the national body. It was hoped that a settlement might be effected before the society celebrated its centennial, but no matter how long it might take, this society could never agree to the sacrifice of those principles for which they had fought so long and earnestly.

REPORT OF COMMITTEE ON HYGIENE.

DR. JOHN L. HEFFRON of Syracuse presented this report. It was largely taken up with a review of what had been accomplished in the control of tuberculosis. It was pointed out that in recent years the death-rate from this disease in Great Britain had been reduced 45%, and in New York City 40%, and the society was urged to throw the weight of its influence in support of the new tenement-house laws, in securing the co-operation of the profession in the registration of this disease and in its more efficient control by the health authorities. In this connection a resolution was introduced by Dr. George B. Fowler of New York, and adopted by the society, requesting the legislature to permit no changes to be made in the present tenement-house laws.

REPORT OF STATE BOARD OF MEDICAL EXAMINERS.

DR. WILLIAM WARREN POTTER of Buffalo presented this report. He said that since the establishment of this board 7,034 candidates had presented themselves, of whom 5,528, or 78.5%, had been successful. The board was in favor of some change by which old practitioners from other states could be more leniently dealt with in the examinations for the primary branches.

REPORT OF COMMITTEE ON UNIFICATION OF THE PROFESSION.

DR. HENRY L. ELSNER of Syracuse, the chairman of the committee, presented this report. The correspondence which had taken place between the two State committees was presented in full, and the report gave in minute detail all the features of the work likely to prove of general interest. The committee expressed itself as satisfied that the cor-

responding committee from the State Association was sincere and earnest about desiring a union of the factions which have so long been a discredit and a detriment to the profession of this State. The chief obstacles to effecting the desired unity were the questions of the plan of reorganization and the old bone of contention — the Code of Ethics of the American Medical Association. With regard to the first, it was learned by consulting legal counsel that there was no occasion for the State Society to appeal to the legislature for a new charter, as that society possessed the power to change its by-laws by vote of its members, and could in the same way incorporate into its membership all members of county societies. This being the case, the New York State Medical Association could abandon its present organization and its members could be admitted to the Medical Society of the State of New York by suitably changing the by-laws of the latter. According to the same legal opinion, the application for a new charter would mean the termination of the existence of the present Medical Society of the State of New York, a step which the members of that society were naturally loath to take in view of the fact that this honorable body had nearly completed its first century. With regard to the second point, the speaker said that they had been assured by Dr. Billings, the president of the American Medical Association, that the Code of Ethics was still in existence and unchanged; hence the committee did not favor recommending to the State Society that any action be taken until the American Medical Association should make it possible for that society to subscribe to its constitution and by-laws and written rules of order without sacrifice of principle. Various plans of reorganization had been suggested. Among them was one which would probably come up for consideration at the New Orleans meeting of the American Medical Association. This called for the payment of a single fee to the State treasurer by every county society member, this payment to entitle the said person to membership in both the State and national bodies. In conclusion, the committee reported progress, and asked to be continued, and at the same time entered a formal protest against both the spirit and the letter of the following resolution, which had been adopted by the New York State Medical Association last October, at the instance of Dr. E. D. Ferguson of Troy: "Resolved, that if the Medical Society of the State of New York shall fail to approve such plan of union by a charter to be secured at the approaching session of the legislature in 1903, then this committee shall be considered as discharged, and the proposition of the association withdrawn." The State Society accepted this report of its committee, and the committee was continued with instructions to persevere in its work and report the result at the next annual meeting.

ARGUMENTS FOR THE EXISTENCE OF A SEPARATE CORTICAL CENTER FOR WRITING.

DR. HERMAN C. GORDINIER of Troy opened the scientific program with this paper. He reported four cases, one of them his own, in which there was motor agraphia and motor aphasia with a pathological lesion at the base of the second and third left frontal convolutions. He said that there

was clinical proof that destruction of Broca's center did not necessarily cause agraphia.

MEDICAL SCHOOL INSPECTION IN THE CITY OF NEW YORK.

DR. HENRIETTA P. JOHNSON of New York read this paper. She said that in the first year of the work of the medical inspectors of schools 108,688 examinations were made, and 6,829 children were excluded from school as a result. The need for such inspection was well shown by the fact that on the school opening day in one school alone there were no less than 100 cases of catarrhal conjunctivitis discovered. In the past four weeks 950 new cases of trachoma had been seen, and 127 operations performed.

THE CARE OF THE INSANE.

DR. CHARLES G. WAGNER of Binghamton discussed this subject, showing in sharp contrast the primitive and inhuman methods of the old asylum with the modern hospital for the insane, the latter being more like a thriving town than a prison. After the acute stage had passed, the secret of successful treatment was to be found in giving these unfortunates suitable occupation. The cases should be individualized, and, in the acute stage, treated by superalimentation and rest, the greatest possible personal liberty consistent with safety being secured by the employment of well-trained nurses.

DIFFERENTIAL DIAGNOSIS OF THE FAMILIAR FORMS OF SPINAL DISEASE.

DR. FLOYD S. CREGO of Buffalo presented this paper. He pointed out that confusion constantly arose as a result of confounding functional and organic diseases of the spinal cord. In many cases the functional or hysterical element was prominent, and yet underlying it careful search would show an organic lesion. In hysteria one would find patches of anesthesia; in hysterical paralysis there was no analgesia and no loss of the heat sense. Lumbar myelitis was often mistaken for Landry's disease, an acute ascending paralysis dependent probably upon some toxemia having a special affinity for the nervous system.

ERYTHROPLEUM: A CLINICAL STUDY.

DR. REYNOLD W. WILCOX of New York read this paper. He stated that while this drug slowed the heart and increased the blood pressure, it acted with greater rapidity than digitalis. It was useful in cases of rapid heart action associated with low tension and venous congestion. It was contra-indicated when the heart was very weak.

OBSERVATIONS ON AMERICAN CLIMATES AND LOCALITIES IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

DR. JAMES K. CROOK of New York was the author of this paper. He earnestly advocated an earlier and more general resort to appropriate climatic treatment, claiming that if this were done the disease would progress in 99% of the cases, despite the supposed better knowledge and more scientific

methods of the present day. Fortunately within the limits of these United States could be found types of all of the best climates, some of them within a short distance of New York City. If it were possible to place each tuberculous person without delay under an environment uniting good air, food and sanitation, with skilful medical supervision, a long step would be taken in the direction of subduing this disease. This could only be accomplished by the establishment of sanatoria in localities having the requisite climatic conditions.

RETINOSCOPY.

DR. D. H. WIESNER of New York read this paper. The instrument used for retinoscopy consists of a plane mirror of glass, about $1\frac{1}{2}$ inches in diameter, having a central aperture, and mounted on a rather long handle. The necessary illumination is obtained from an Argand burner placed about 40 inches distant. Retinoscopy consists in observing the movements of the reflex from the retina in both the horizontal and vertical meridians. When the illumination moves with the mirror in both meridians the eye is known to be hyperopic; when the movement of the illumination is opposite to that of the mirror, the case is one of myopia.

THE PHYSICIAN AND THE OPHTHALMOSCOPE.

DR. FRANCIS VALK of New York presented a paper with this title. Its object was to show some of the reasons why this valuable diagnostic instrument was not more commonly employed by the general practitioner, and to simplify the subject so that it might become a more popular means of diagnosis. The procedure advocated is as follows: Having properly placed the source of light, the latter should be reflected into the patient's eye. If a red reflex were not then visible a + 6 glass should be brought before the aperture, as this would allow the observer to obtain a clear view of the field if there were no opacity. One of the difficulties most frequently encountered by those inexperienced in the use of the ophthalmoscope was that of adjusting the observer to the rays of light reflected from the eye under examination. This could be best overcome by placing one of the concave lenses, one of those marked in red, before the aperture, thus neutralizing the observer's accommodation and bringing the details of the background of the eye into view. Sometimes it would be necessary to temporarily dilate the pupil, and if this were done with a little cocaine or homatropine, the patient would experience no great inconvenience after a few hours. The arteries were distinguished from the veins on the fundus by the fact that the former were of lighter color and had a line along the center.

INCOMPLETE TRANSVERSE CONGENITAL OCCLUSION OF THE VAGINA.

DR. SAMUEL M. BRICKNER of New York reported four cases of this kind, and drew the following conclusions from their study: (1) Transverse vaginal septa are due to an embryonal fold, and (2) this is due to a reversion to a former type.

(To be continued.)

Recent Literature.

The Medical Epitome Series. Diseases of the Skin. A Manual for Students and Practitioners. By ALFRED SCHALEK, M.D. Series edited by V. C. PEDERSEN, A.M., M.D. Philadelphia and New York: Lea Brothers & Co.

There seems to be no limit to the supply of condensed handbooks of skin diseases. Dr. Schalek has added one that seems to be carefully compiled and that has a neat and attractive appearance. So little opportunity for originality is offered by this class of publication that further comment is unnecessary.

The Force of Mind, or the Mental Teacher in Medicine. By ALFRED T. SCHOFIELD, M.D., M.R.C.S. 12mo, pp. xvi, 309. Philadelphia: P. Blakiston's Son & Co. 1902.

The first part of this volume treats of the action of the mind, including what is now so often called the unconscious mind in the causation of disease, the mental factor being an element in all diseases. This mental factor, the author maintains, is too often neglected by the physician, and the patient thus becomes a ready victim for the charlatan who makes use of it. It is, therefore, of great importance to utilize this mental factor in the treatment of disease, especially by the influence of the unconscious mind. Although the author's main position is a sound one, and one that has long been accepted, the work itself is of little value. It is made up largely of clippings from various medical writers and reported cases of cures by psychical agencies of greater or less authenticity, connected by a platitudinous text and supplemented by an absurd bibliography, containing such enlightening references as "Solomon, King, Proverbs of," and "Lancet, 1853, 1879," etc.

Clinical Psychiatry. A Textbook for Students and Physicians. Abstracted and Adapted from Sixth German Edition of Kræpelin's "Lehrbuch der Psychiatrie." By A. ROSS DEFENDORF, M.D., Lecturer in Psychiatry in Yale University, etc. Cloth, 8vo, illustrated; pp. 450. New York: Published by Macmillan Co. 1902.

This work is the only English exponent of the teachings of Kræpelin as a whole that we have, and on that account should be welcomed by all alienists. Like most adaptations, many of the excellences of the original are lost and some of the editor's additions, abbreviations and other changes are unfortunate and detract not a little from the value of the book. Nevertheless, the condensation as a whole is effected without the loss of any of the important features of the extensive work of the great psychiatrist. It will, therefore, appeal to the student and general physician, who would be apt to regard the graphic and masterly pictures of disease-forms in the original as too redundant in acts and minor symptoms to be practical or necessary.

The best chapters are those on Dementia Precox and Manic-Depressive Insanity, in the study of which lies the chief value of Kræpelin's illuminating contribution to the knowledge of the disease-

forms of insanity. Mental impairment due to senility, a subject of especial interest to physicians generally, does not receive here proper consideration, and will disappoint those who look for full description of these states and discriminating opinion for guidance in medico-legal cases.

The translation is so clear, readable and generally acceptable as to make it especially disappointing that the editor was unable to carry out his original intention of giving us a complete translation of Kræpelin's work. Until this can be had, Defendorf's book in spite of its demerits, which after all are minor ones, is indispensable for alienists and students who are not ready readers of German and who wish to familiarize themselves with the most satisfactory doctrine of psychiatry that has yet been advanced.

A Text-Book of Materia Medica, Therapeutics, and Pharmacology. By GEORGE F. BUTLER, Ph.G., M.D., Professor of Materia Medica and Therapeutics in the College of Physicians and Surgeons, Chicago; Medical Department of the University of Illinois, etc. Fourth edition, thoroughly revised. 896 pp. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

The author classifies the drugs more or less according to a system of his own, without much regard for pharmacological action. One illustration without comment will suffice to show his method or lack of method. For example, he puts iron, fat, phosphorus, earthy salts, mineral acids and bitters in the same group, which he calls that of "Restoratives." The book contains misstatements and, even in spite of its large size of nearly 900 pages, important omissions. It is unsuitable as a text-book of pharmacology, materia medica and therapeutics. — M. V. T.

A Manual of Practical Medical Electricity, the Röntgen Rays and the Finzen Light. By DAWSON TURNER, B.A., M.D., F.R.C.P. (Edin.) Third edition, revised and enlarged. 8vo, pp. xx, 396, with 168 illustrations. New York: William Wood & Co. 1902.

With each new manual of electro-therapeutics or each new edition of an old manual comes some new application of electricity to the diagnosis or treatment of disease. The title of the volume before us shows the latest use of electricity in the production of the ultra-violet rays as advocated by Finzen, a method which, although involving elaborate and costly apparatus, seems, nevertheless, to be of great value in the treatment of lupus, rodent ulcer and possibly other conditions. Practical details are given of the application of this method to the treatment of disease, with illustrations of the various forms of apparatus. In addition to these new chapters, the rest of the work, dealing with the more familiar applications of electricity in medical and surgical work and with electrophysics and electro-physiology, has been thoroughly revised. The book is concisely and clearly written by a man familiar with the subject, who has himself done valuable work in research. It is a useful guide for the student, and one of the best of the recent works on the subject that have come to our notice.

THE BOSTON
Medical and Surgical Journal

THURSDAY, FEBRUARY 19, 1903

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THE JOURNAL'S SEVENTY-FIFTH ANNIVERSARY.

THE first issue of the BOSTON MEDICAL AND SURGICAL JOURNAL as a weekly journal under that title appeared Feb. 19, 1828; with this year and this issue, therefore, the JOURNAL celebrates its seventy-fifth anniversary even to the day of the month. From February, 1828, to February, 1903, there has been a continuous weekly issue of the JOURNAL without intermission. Through all the changes and chances of medical journalism during that long period, — and these have been both numerous and serious, — the JOURNAL has held its own and kept on its way. The London *Lancet* is probably the only other weekly medical journal now in existence with anything approaching such an unbroken record.

In another form the JOURNAL antedates the year 1828. It was the product of a combination between two other medical publications, namely, the *New England Medical Journal*, a quarterly, begun in 1812, under the control of Drs. John C. Warren, Walter Channing and John Ware, and the *Boston Medical Intelligencer*, which was started as a weekly journal in 1823, by Dr. Jerome V. C. Smith. After the consolidation of these two periodicals in 1828, under the control of the former managers of the *New England Journal*, the BOSTON MEDICAL JOURNAL was not only the first to live but for many years the only weekly medical journal in this country.

The *Lancet* was started as a weekly journal by Thomas Wakley in London, Oct. 5, 1823, and the *American Journal of the Medical Sciences* began as a quarterly in Philadelphia in November, 1817, a few months earlier than this JOURNAL in its present form. Within recent years the *American Journal* has changed its form to a monthly.

Prior to this JOURNAL thirty-one medical jour-

nals had been started in the United States, twenty-three of which had suspended or merged in other journals. Of the immense number that have been conceived, been born and died since that time it would be futile to attempt an estimate. Those who may have curiosity upon this point are referred to an article by Dr. J. S. Billings, on the "Medical Journals of the United States,"¹ contributed to the opening number of our one hundredth volume, where may be found tables of mortality of medical journals from 1797 to 1878 inclusive and lists of medical journals of the United States arranged by states.

As at present, so for the greater part of its existence, this JOURNAL has been owned and controlled by medical men and edited and published for the benefit of the profession at large, with particular reference to New England. The simple statement "Conducted by a Number of Physicians" upon the title page of its progenitor, the *New England Journal of Medicine and Surgery* in 1812, suffices to-day as it did then. We only desire to repeat but to add nothing to the following concise and modest sentences from the first editorial of Feb. 19, 1828: "Whether it will be continued in its present form will be determined by experiment. As it is devoted to no party nor institution, the editors (and Board of Management) offer it to the medical profession as a vehicle for such publications as they may wish to make; and they hope by it to bring out the talent of this part of the country."

THE MANAGEMENT OF STATE INSANE HOSPITALS.

THE growing medical interest in the management of insanity prompts us to make some comments on an interesting set of pamphlets recently issued by the State Charities Aid Association of the State of New York. During the legislative session of 1902 Governor Odell forced the passage of a bill which roused much indignation, both owing to the method employed and owing to the consequences. The Tenth Annual Report of the association gives a brief history of the step. In his message the Governor made serious charges against the Boards of Managers of the State hospitals, which were made responsible for extravagances and grave mismanagement. Remonstrances followed, but no specific facts were furnished in reply. Bills were then introduced in the Senate and House to bring about the changes recommended by the Governor. The issue of the propositions was practically the removal of the boards of managers and the investment of the commission with all those authoritative decisions

¹ Boston Med. and Surg. Journ., Vol. c, No. 1.

which had been in the hands of the local authorities, the superintendents and the boards of managers.

The centralization of power in the commission was, however, only part of the plan. Formerly the Governor had merely the power of appointment of the commissions and managers subject to the approval of the Senate, and the power of their removal upon cause shown, and after an opportunity to be heard; further, the approval of the classification of salaries and wages of the officers and employees, together with the Secretary of State and the comptroller. This new law made the decisions of the commission subject to approval by the Governor on the following points: Rules and regulations of management of the hospitals; transfer of any of the powers and duties of the superintendent to another officer, to be appointed by the commission; transfers of superintendents and assistant physicians from one State hospital to another; the abolishment of the office of any of the resident officers and employees; expenditures for repairs and construction of buildings and the letting of contracts (together with the comptroller). The Governor also obtained the right to appoint and remove at his pleasure the members of the boards of visitation. These boards are required to report monthly to the Governor and to the commission. They have no power of action.

The bill was passed on a party vote. The numerous remonstrances were at no time answered, and the insinuations against the managers were not made specific until after the bill was signed. A noteworthy document was given out by the Governor, with twenty-three cases of extravagance, inefficiency or improper conduct on the part of the managers. Eighteen of them were based on total misunderstanding of the facts, four had occurred before the existing system was introduced (1893), and the only substantiated case, one of bribery, was probably misstated, since the Governor has since appointed one of the two accused persons as a member of the new board of visitation. The Governor had obtained his facts not from the authorities most likely to be informed, but apparently on a hasty visit to a number of the State hospitals. The change is said to have been made "in good faith," but obviously with total disregard for coöperation with the parties best informed and most immediately concerned, and without any effort to get at the facts before conclusions were reached.

The pamphlets of the State Charities Aid Association show plainly the evil features of this step. The chief departure from natural and efficient plans lies in the assumption that three commissioners could have the time and capacity for work to attend properly to the duties put upon them — not to speak of the Governor. This leads to arbitrary decisions

and creates a large number of dumb officials in the institutions, with crippled authority, no longer accountable for what is now decided for them. Since the pressure in Albany is for economy, and the consequences are merely felt in the hospitals, a policy becomes possible which is irremediable unless strong enough outside pressure attempts to correct the condition. The association has not been very successful so far, and it remains to be seen how this unnatural state of affairs will correct itself.

The State of Massachusetts may well be congratulated on the wise limitation of the centralizing mania. It seems very obvious that the main power of shaping things should rest with those most familiar with the needs and those under direct responsibilities. To sacrifice the efficiency of shaping things to mere methods of control is a very short-sighted policy. In this State the wisdom of the present regulations cannot be overrated. It makes the central authorities advisory and helpful and only secondarily controlling, and leaves the decision in the hands of the responsible local board and authorities. This means coöperation, not coercion.

It is to be hoped that other states which look for reform may give careful attention to this comparison. If physicians are worthy of the trust of being managers of the question of insanity, the profession should stand firmly by them, and guarantee a policy of free discussion of the facts instead of the method of *a priori* conclusions and centralization of power where centralization of knowledge and experience is out of the question.

While the State hospitals of New York have not suffered any demonstrable damage yet, the respect for professional opinion has certainly received a lamentable blow.

HARVARD GRADUATES DEFICIENT REPRODUCERS.

At brief intervals, and always on the appearance of his annual report, the president of Harvard University furnishes men, and women too, with food for reflection and comment. President Eliot now presents himself *quasi* Rachel, weeping not merely for children that are not, but for children that never were. Will he refuse to be comforted?

It appears from investigations which he has had made in regard to six Harvard classes, from 1872 to 1877 inclusive, that: "These classes have by no means reproduced themselves; that they have, indeed, fallen 28% short of it. Twenty-eight per cent of the members of these classes are unmarried, and those who are married have on the average only two surviving children; so that the married pairs just reproduce themselves on the average. It

is obvious from these figures that the entering classes of Harvard College and the Lawrence Scientific School to-day can be recruited from sons of Harvard graduates only in small degree. If the graduates of the six classes named could send all their sons to Harvard College within the six years 1902-07 inclusive, they would only supply one hundred freshmen a year, or possibly one seventh of the total number who will enter. The table suggests further that the highly educated part of the American people does not increase the population at all, but on the contrary fails to reproduce itself. If many other colleges and universities publish class reports analogous to the Harvard reports, a competent statistician might establish from the assembled reports some interesting and important conclusions. It is probable that the regrettable result indicated by the figures is due in part to the late postponement of marriage on the part of educated young men, a postponement which the protracted education now prescribed for men who enter the learned and scientific professions makes almost unavoidable. The young physician, lawyer, engineer or architect is now fortunate if he marries at twenty-eight or twenty-nine; whereas he should have married at twenty-five or twenty-six. To make earlier marriage possible is one of the strong inducements for bringing to an end the school course at seventeen or eighteen, the college course at twenty or twenty-one, and the professional training at twenty-four or twenty-five."

It seems, however, that Harvard College is by no means alone in this matter. The graduates of Yale College apparently are doing no better, if as well, as reproducers. There is complaint that young Americans of American parentage, upon whom certain industrial undertakings in Connecticut have been accustomed to rely as recruits for their most competent workers, are getting scarce. The native New England population in general is far from being prolific, and this is nearly as true of those without as of those with a college training. These facts have for some time been steadily forcing themselves upon the attention of the social statistician at home.

And when we look across the Atlantic we find that the same tendency, and even less flattering conditions, are filling the minds of men with concern. For some time back natality and mortality in France have been almost evenly balanced. France has recently appointed an extra-parliamentary commission on depopulation. A recent number of the *British Medical Journal* contains an editorial on "Depopulation and the Marriage-Age." The writer takes the stand that: "France's concern we, her neighbors, cannot afford to be indifferent about, if for no higher

reason than that there are signs that we also may before long find ourselves in like case." Macquart, a French anthropologist, statistically shows that a diminishing birth-rate, first evident in France, has, since 1874, increasingly manifested itself also in England, Germany, Belgium and Holland. Macquart suggests the conclusion that civilization and a diminishing birth-rate go hand in hand. France simply leads the way in civilization, and the other nations follow. This causes the *British Medical Journal* to denounce a civilization which, once definable as the humanization of man in society, is now to be the sterilization of the race.

On the other hand, Dumont, another French anthropologist, looks upon delayed marriage as the root of all this evil, as responsible for the acknowledged falling birth-rate. The parasitic stage of life for sons is unduly lengthened. "The individual aims more and more at the goal of personal comfort and is less and less willing to accept new and ill-defined responsibilities." To remedy the trouble, he proposes shortened service in the army and improved and extended education — especially in the sciences.

Many seem to be wandering in the same sterile wilderness, with contradictory or misleading guides.

To a weeping Rachel this is indeed cold comfort, but misery does love company, and restriction in the more-prolific-than-thou salutations is an alleviation, however slight. We say nothing about pre-natal mortality; and the female philosopher who tells us there is no misfortune, because Harvard graduates are not the best material for purposes of paternity, we simply ignore!

THE PHYSIOLOGICAL EFFECTS OF COMPETITIVE SPORTS.

THE article based upon observations on long-distance runners, which appears in this number of the JOURNAL, is of interest from several standpoints. It is in reality a physiological research, conducted under unique and often uncomfortable circumstances. The uproar and excitement which surrounds both the start and the finish of these contests is not ideally suited to research work; yet it is the invariable accompaniment of such forms of exertion, and it cannot be ignored, therefore, in studying resulting effects. Pure physiological experiments or observations upon hired performers suffer from the absence of these factors, and in so far fail to reproduce all the conditions of actual competition.

Boston is almost the only city in the world where a race of this sort is an annual affair, and where there is ample opportunity to carefully examine the contestants both at start and finish.

Comparatively little work of this character has been done in this vicinity: Atwater, Darling and Williams and Arnold have been the chief contributors. Enough has been accomplished, however, to show that varying forms of exercise may produce varying results, and that sweeping deductions cannot logically be based upon observation of a single type of exertion. Rowing and football have been studied with much care.

This particular research has brought to light conditions of the blood and the urine which had not previously been considered consistent with health. It shows that the exertion of running may be so violent as to produce temporarily the symptoms of disease in a perfectly healthy individual, and that these symptoms rapidly diminish and disappear, apparently leaving no trace behind them. It also explains certain conflicting statements in relation to temperature, and demonstrates the surprising differences that may obtain between the mouth and rectal temperatures, taken simultaneously. It contributes to the knowledge of the effects of exercise upon the heart, though it does not finally settle this question. It suggests many other lines of investigation, among them the results of the ingestion of alcohol in such contests, the effects of such exercise upon the processes of digestion, and the blood-pressure results as measured by the Riva-Rocci apparatus.

Investigations such as these furnish the only scientific data which can be accepted in endeavoring to answer the vexed questions of the final effects of violent competitive athletics. Statements of individuals are often tinged with prejudice, since those who are fond of exercise are apt to consider it beneficial; while those who dislike it are equally sure that it is hurtful.

The observer who brings to his task a mind entirely unbiassed, and makes and compares observations taken as in any other routine physical examination, will eventually be in a position to answer the questions in an authoritative manner. It is earnestly hoped that such observations will be continued, will increase in frequency and will be applied to all sorts of sports. They might well be undertaken by army surgeons, who could in addition control accurately the quantity as well as the character of the food ingested. It is certainly true that such investigations increase in value with further experience in methods. This has been definitely shown in the studies of the Marathon runners. It is a pleasure to record that the officials as well as the contestants of the Marathon races have done all in their power to aid and facilitate observations which must at times have seemed to them rather mysterious and tiresome.

MILK AND THE PUBLIC HEALTH.

WE desire to call attention to a recent valuable piece of work by George M. Kober, Chairman of the Committee on Public Health, Civic Center, and Chairman of the Committee on Legislation, Medical Society of the District of Columbia, on the subject of milk in relation to public health. This work has been published as Senate Document No. 441. Dr. Kober has for a number of years been engaged in the study of milk in relation to the public health, regarding the production and dissemination of pure milk as an important sanitary problem. The publication before us, in 235 pages, discusses, and in much scientific detail, the broad questions relating to dairy farms, care of cattle and methods by which the public may be safeguarded from the dangers of carelessness. A series of tables on epidemics of typhoid fever and of other diseases supposed to have been due to contaminated milk supply is appended, which should be of great value to the student of statistics in relation to this important matter. We can cordially recommend the reading of this work to all those who are interested in the public health, and particularly to students of that still common disease, typhoid fever.

MEDICAL NOTES.

"BIOCHEMISCHES CENTRALBLATT."—The great strides made in medical chemistry and in those fields of medicine verging on chemistry necessitated the publication of a central organ. This is now published in Berlin under the direction of Ehrlich, Fisher, Kossel, Liebreich, Muller, Proskauer, Salkowski and Zuntz, and they have appointed Heinrich Stern of New York editor for the United States and Canada. The object of the publication will be:

- (a) To report such experiments and observations of physical and employed chemistry as are of importance to the physician.
- (b) Reports on the physiology of plants.
- (c) Physiological chemistry in the narrower sense (constituents of the body and their derivatives.)
- (d) Chemistry of the tissues and organs under normal and pathological conditions.
- (e) Chemistry of digestion, secretions and excretions, metabolism and blood.
- (f) Ferments and fermentations, toxins of a non-bacterial nature.
- (g) Chemistry of the pathogenic micro-organisms (toxins, antitoxins), phenomena of immunity.
- (h) Toxicology and pharmacology.
- (i) Hygienic chemistry, disinfection, examination of water.

As this is the only international organ devoted to

these scientific fields, the American editor invites American observers and investigators to prepare abstracts of their papers which have appeared since Jan. 1st and will appear hereafter, and send them to Dr. Heinrich Stern, 56 East 76th Street, New York City.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Feb. 18, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 28, typhoid fever 4, measles 12, smallpox 10.

BEQUESTS. — In the will of Miss Emily E. Sears of Boston, which has recently been filed, \$5,000 was left to each of the following institutions: The Home of the Good Samaritan, the Associated Charities, the Children's Hospital and Trinity Church, for the poor of the parish. The Art Museum received \$25,000.

A TRUSTEE FROM THE RANKS OF LABOR. — It is reported that at a recent meeting of the Central Labor Union of Boston it was decided to request the mayor to give the laboring classes representation on the board of trustees of the City Hospital. It was argued that, inasmuch as working men are the chief patrons of the institution, they should have a voice in its management. The fallacy and possible danger of such a principle of representation is apparent.

A CENTENARIAN. — Capt. J. F. Stickney died recently at Newburyport at the reputed age of one hundred and one years. He is said to have recalled events which occurred during the war of 1812.

A FATEFUL ANNIVERSARY OF AN OLD SOCIETY. — Had there been sufficient interest in the subject, the Boston Society for Medical Improvement might have celebrated this month its seventy-fifth anniversary, having been begun the same year and the same month as this JOURNAL. The celebration proposed seems, however, inclined to take the form of a "wake," with a prudential committee sitting on the corpse.

AN ERUPTION OF SOUFFRIER MOUNTAIN, ST. VINCENT ISLAND. — Notwithstanding recent happenings, one of the most vivid descriptions of a West Indian volcanic eruption may be found in the pages of the JOURNAL's progenitor, *The New England Journal of Medicine and Surgery*, Vol. II, p. 95, 1818. This eruption occurred April 30, 1812, after a century of quiescence on the part of this volcano at St. Vincent's Island. The quiescence remained again unbroken for nearly a century, until the terrible recurrence last year.

GEORGE HIGGINSON PROFESSORSHIP OF PHYSIOLOGY. — Henry Pickering Bowditch, M.D., professor of physiology at the Harvard Medical School, has lately been appointed to the new George Higginson professorship of physiology at this institution.

NEW YORK.

DRUG IMPURITIES. — At a meeting of the Society of Medical Jurisprudence held Feb. 9, Dr. H. W. Wiley, chief of the Division of Chemistry of the Department of Agriculture at Washington, read a paper on drug impurities, and the dangers to the public from the use of common articles. In the course of it he stated that in several samples of black stockings tested in his department a large amount of arsenic was found, and referred to the case of Senator C. K. Davis of Minnesota, who died from blood poisoning caused by his stockings. Arsenic, beside being present in stockings, he said, was found in most wall papers and in many cloths, as well as in beer and glycerin. After commenting on the New York Health Department's recent discovery that the substitution of acetanilid for phenacetin was common, he spoke of the danger of optic neuritis in consequence of the prevalent substitution of methyl alcohol for ethyl alcohol in various articles, and mentioned the case of a citizen of Boston who had lost his eyesight from the use of Jamaica ginger in which this had been done. Many of the patent medicines, the names of which give no indication of the fact, contain considerable quantities of alcohol, and the consumers of them are extremely apt to acquire the alcohol habit in consequence. The cocaine and other drug habits are acquired similarly. The Government, he thought, should afford some means of protection against such dangers. He spoke of the Pure Drug Bill now pending in the Senate, after having been passed by the House, and recommended a national and state system of inspection, the two supplementing each other. Last year, he went on to say, Congress authorized his department to inaugurate a systematic investigation of drug impurities, such as have been made in regard to foods for the past fifteen years. As yet no laboratory for this new work had been provided, but on the 1st of March the testing of drugs was to be commenced, the other laboratories of the department being used for this purpose.

BEQUEST OF CHARLES A. COWTOIT. — On February 11 there were opened at St. Mary's Free Hospital for Children two new wards, provided through a bequest of Charles A. Cowtoit, and also a new chapel and an additional building for domestic offices.

SITE FOR THE ROCKEFELLER INSTITUTE LABORATORY.—It is understood that negotiations are now pending for the purchase of a portion of what is known as the old Schermerhorn farm, fronting on the East River, as the site for the new laboratory for the Rockefeller Institute. This lot comprises four city blocks of unimproved land, uncrossed by streets and extending from Sixty-fourth to Sixty-eighth Street. The land has an elevation of twenty to thirty feet above the river, of which, with Blackwell's Island, it commands an unimpeded view.

Correspondence.

THE COLLECTION OF CLAIMS.

Boston, Feb. 14, 1903.

In June, 1902, a young man of kindly manner and intelligent appearance came to my office and presented me the card of a firm of lawyers down town on which was printed his own name underneath. He was, he said, in their office, and their chief business lay in the collection of different claims. It was, in fact, in regard to one of these that he had come to see me, he said, and he asked me if Mr. A. did not owe me an old account of \$36. This I found to be the case, but I had some recollection of Mr. A. having gone into bankruptcy, which I had come to regard as the graveyard of doctors' bills. The young man said that Mr. A. had gone into bankruptcy, but had plenty of money, and, in fact, had paid him a larger bill than mine within a week.

The collection of such a bill he very justly remarked necessitated some extra expense, and I must pay him \$3 if he undertook it or he would buy the claim of me for \$8 cash, but he called my attention to the fact that I would be a good deal better off to retain than to sell the claim. As his offer to buy the claim for cash seemed eminently a fair one I gave him \$3 and assigned the claim to him, taking his receipt.

When I came back from my vacation my first visitor, by telephone appointment this time, was the same young man from the lawyers' office. He said he had been waiting to see me on a matter of importance. If he was not mistaken, he said, Mr. B. owed me \$359 and with interest it would amount to perhaps \$450. Now Mr. B. had also been in bankruptcy but had money and could be made to pay, in fact he had paid a small bill a few days ago and in so doing had displayed a large roll of bills. I called the attention of the young man to the fact that the claim of Mr. A. had not yet been paid me, but he said he had forgotten to tell me that he had Mr. A.'s note which would be paid in a week or he would make trouble for Mr. A. The full amount, he said, was as good as in my hands. To collect the claim of Mr. B., however, this claim of \$450, I must join the collection agency that he represented. A little claim like Mr. A.'s was well enough, but for this second claim I must join for a year, which would be \$25 in advance, plus the usual percentage. For this they would take all my bad bills. He left a printed form for me to fill out, and I put him off over Sunday as I had begun to take an interest in the game.

A mercantile agency, consulted through a friend, spoke well of the lawyers, and the young man had shown me several letters from well-known physicians. A lawyer friend whom I saw on Sunday gave me three pieces of advice: (1) Take up at once any cash offer; (2) be very careful what I signed; (3) not pay out one cent. On Monday my young man was on hand. I was very indefinite, and he offered me \$50 for the claim. I let him offer it again and then I closed on the offer. He said he hated to see me lose \$300 or more, but I told him I could judge of that for myself, and I should hold

him to his offer. He asked if a certified check for \$50 would do, and I said that it would perfectly. He promised it for two o'clock that day.

A few days later, being down town, I went into the office; there, sure enough, was the intelligent young man, he had been ill, he said, and out of town, and was sorry to have troubled me. The check should be in my hands by one that day. About a week later I was enough interested to go to see the lawyers. They, of course, repudiated the young man. He was their agent only to solicit for their agency, but he had no right to go as far as he had. In fact he should only have charged me \$10 for a year's membership. Did I care to join at that price?

I know when I am beaten and I stopped. As I write it out I cannot see how I was so green, but he was a very plausible young man and some of your other readers may have met him. At present I have paid \$3 and have given away a claim of \$36. To balance this I have his promise to pay me \$50 (unsecured and five months old), and I have learned a certain amount about the collection of claims. ***

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 7, 1903.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Whooping cough.	Scarlet fever.
New York . .	3,785,156	1,433	407	21.49	17.73	3.37	.91	1.13
Chicago . . .	1,885,000	598	173	29.98	21.30	2.18	.50	1.56
Philadelphia .	1,378,527	598	141	23.97	17.44	3.01	2.51	.17
St. Louis . . .	618,481	—	—	—	—	—	—	—
Baltimore . .	533,712	245	84	26.98	16.73	2.45	.41	—
Cleveland . .	427,731	—	—	—	—	—	—	—
Buffalo . . .	387,994	—	—	—	—	—	—	—
Pittsburg . .	351,745	134	45	26.98	15.67	1.49	3.23	—
Cincinnati . .	335,140	—	—	—	—	—	—	—
Milwaukee . .	315,307	—	—	—	—	—	—	—
Washington .	295,103	—	—	—	—	—	—	—
Providence . .	191,230	88	32	11.36	31.58	—	—	—
Boston . . .	603,163	251	64	19.53	21.51	1.90	1.59	.78
Worcester . .	132,044	40	14	10.00	17.50	—	—	2.80
Fall River . .	115,549	54	26	27.91	24.06	3.70	—	—
Lowell . . .	101,959	47	17	14.89	31.90	2.13	—	2.13
Cambridge . .	98,639	34	12	8.83	29.41	—	—	2.94
Lynn	72,497	24	6	8.33	2.33	8.83	—	—
Lawrence . .	69,766	39	12	20.69	37.92	6.89	—	—
Springfield .	69,389	21	7	33.33	33.81	4.76	4.76	—
Somerville . .	68,110	26	8	11.55	26.95	3.85	—	3.85
New Bedford .	67,198	25	12	24.00	23.00	—	—	8.00
Holyoke . . .	49,286	17	13	23.53	29.40	5.88	—	—
Brockton . . .	44,873	17	8	5.88	—	—	—	—
Haverhill . .	42,104	14	4	14.33	21.43	—	—	—
Newton . . .	37,794	8	1	25.00	—	12.50	—	—
Salem	36,876	21	4	9.52	—	—	—	—
Malden . . .	36,286	19	11	—	26.31	—	—	—
Chelsea . . .	35,876	13	4	—	30.80	—	—	—
Fitchburg . .	35,069	10	2	20.00	10.00	—	10.00	—
Taunton . . .	33,656	9	1	22.22	—	—	—	—
Everett . . .	28,620	14	6	7.14	—	7.14	—	—
North Adams .	27,862	8	4	12.50	37.50	12.50	—	—
Gloucester . .	26,121	6	2	33.33	—	16.67	—	—
Quincy . . .	26,042	7	—	14.30	42.90	—	—	—
Waltham . . .	25,198	7	3	14.80	—	—	—	—
Brookline . .	22,608	5	2	—	—	—	—	—
Pittsfield . .	22,589	4	1	—	—	—	—	—
Chicopee . . .	21,031	6	4	—	33.33	—	—	—
Medford . . .	20,962	6	3	—	16.67	—	—	—
Northampton .	19,883	6	2	—	—	—	—	—
Beverly . . .	15,302	3	—	—	—	—	—	—
Clinton . . .	15,161	7	—	14.30	28.60	—	—	—
Leominster . .	14,806	—	—	—	—	—	—	—
Newburyport .	14,478	2	1	50.00	50.00	—	—	—
Woburn . . .	14,300	4	1	—	—	—	—	—
Hyde Park . .	14,175	—	—	—	—	—	—	—
Adams	13,745	—	—	—	—	—	—	—
Attleboro . .	13,677	—	—	—	—	—	—	—
Marlboro . . .	13,609	6	3	—	—	—	—	—
Melrose . . .	13,600	3	1	—	33.33	—	—	—
Westfield . .	13,418	3	1	—	—	—	—	—
Milford . . .	13,129	—	—	—	—	—	—	—
Revere	12,722	6	2	16.67	33.33	—	—	—
Framingham .	12,534	7	1	38.60	42.90	—	—	—
Peabody . . .	12,179	—	—	—	—	—	—	—
Gardner . . .	11,928	—	—	—	—	—	—	—
Weymouth . .	11,344	5	1	—	40.00	—	—	—
Southbridge .	11,268	4	1	—	25.00	—	—	—
Watertown . .	11,077	3	—	66.67	—	—	—	—
Plymouth . .	10,730	—	—	—	—	—	—	—

Deaths reported, 3,893; under five years of age, 1,140; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 817, acute lung diseases 783, consumption 413, scarlet fever 84, whooping cough 41, cerebrospinal meningitis 5, smallpox 5, erysipelas 10, measles 81, typhoid fever 64, diarrheal diseases 79, diphtheria and croup 99.


From whooping cough, New York 13, Chicago 3, Philadelphia 15, Baltimore 1, Pittsburgh 3, Boston 4, Springfield 1, Fitchburg 1. From erysipelas, Chicago 2, Philadelphia 4, Baltimore 1, Pittsburgh 1, Boston 2. From smallpox, Philadelphia 3, Pittsburgh 3.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,023, for the week ending Jan. 24, the death-rate was 20.1. Deaths reported, 5,822; acute diseases of the respiratory organs (London) 411, whooping cough 185, diphtheria 80, measles 123, smallpox 5, scarlet fever 48.

The death-rate ranged from 6.2 in Smethwick to 32.9 in West Bromwich; London 20.9, West Ham 20.3, Brighton 18.7, Portsmouth 16.3, Southampton 18.0, Plymouth 22.3, Bristol 19.5, Birmingham 22.0, Leicester 12.8, Nottingham 21.0, Bolton 19.5, Manchester 24.4, Salford 19.1, Bradford 20.4, Leeds 19.5, Hull 18.3, New-Castle-on-Tyne 27.0, Cardiff 18.1, Rhondda 20.0, Liverpool 24.5, Hornsey 12.0, Bootle 20.6.

METEOROLOGICAL RECORD

For the week ending Feb. 7, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.	
S. .	1	30.11	30	85	26	62	76	69	W	E	6	6	O.	O.	O.
M. .	2	29.97	37	41	33	78	100	89	W	E	4	5	O.	R.	15.
T. .	3	30.00	43	49	37	72	62	62	W	N E	7	3	C.	C.	.01
W. .	4	29.40	38	42	34	100	100	100	S E	N W	20	10	E.	R.	.51
T. .	5	29.38	28	35	21	71	50	60	W	N W	14	26	O.	F.	.20
F. .	6	30.00	30	37	22	43	55	49	W	N W	15	7	C.	C.	O.
S. .	7	30.27	26	32	21	59	64	62	N W	*	12	9	C.	C.	O.
		29.88		39	28			70							.38

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. 48—Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING FEB. 14, 1903.

E. J. CROW, passed assistant surgeon. Detached from the "Marblehead" and directed to wait orders.

W. L. BELL, passed assistant surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the "Marblehead."

R. W. PLUMMER, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of Lieutenant, junior grade, from June 17, 1902.

R. W. BRIGGS, assistant surgeon. Appointed assistant surgeon, with rank of lieutenant, junior grade, from Jan. 19, 1903.

R. L. SUTTON, F. W. S. DEAN, assistant surgeons. Appointed assistant surgeons, with rank of lieutenants, junior grade, from Jan. 26, 1903.

W. H. BLOCK, acting assistant surgeon. Ordered to the naval recruiting office, Chicago, Ill.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEB. 12, 1903.

MAGRUDER, G. M., surgeon. Granted leave of absence for one day. Feb. 6, 1903.

DECKER, C. E., assistant surgeon. Granted leave of absence on account of sickness, for ten days. Feb. 10, 1903.

PARKER, H. B., assistant surgeon. To proceed to New Orleans, La., for special temporary duty. Feb. 6, 1903.

HAMILTON, H. J., acting assistant surgeon. Granted leave of absence, on account of sickness, for thirty days from Dec.

27, 1902. Feb. 3, 1903. Granted fifteen days' extension of leave of absence, on account of sickness, from Jan. 27. Feb. 7, 1903.

SIBREE, H. C., acting assistant surgeon. Granted leave of absence for six days from Feb. 7. Feb. 6, 1903.

ULRICH, C. F., acting assistant surgeon. Granted leave of absence for twenty-five days from Feb. 15. Feb. 11, 1903.

GAHN, HENRY, pharmacist. Granted leave of absence for five days from Feb. 6, 1903, under provisions of paragraph 210 of the regulations.

RESIGNATION.

Acting Assistant Surgeon Pedro Malaret resigned, to take effect Jan. 31, 1903.

BOARD CONVENED.

Board convened to meet at Washington, D. C., Feb. 9, 1903, to consider an outline plan for the marine hospital to be erected at Savannah, Ga. Detail for the Board: Assistant Surgeon-General J. H. White, chairman; Assistant Surgeon-General L. D. Williams, Assistant Surgeon-General W. J. Pettus, recorder.

SOCIETY NOTICE.

BOSTON MEDICAL LIBRARY. MEDICAL MEETING.—The regular meeting will be held in the John Ware Hall, Medical Library Building, The Fenway, on Monday, Feb. 23, 1903, at 8.15 P.M., sharp.

Program: Dr. Charles W. Townsend, "Cream for the Home Modification of Milk"; Dr. Philip P. Sharples and Dr. Eugene A. Darling, "Variation in the Composition of Human Milk"; Prof. Theobald Smith, "Foot-and-Mouth Disease"; Dr. Arthur H. Wentworth, "Foot-and-Mouth Disease in Children"; Dr. Edward H. Bradford, "Congenital Dislocation of the Hip," illustrated by means of Pathological Specimens and Lantern Slides.

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RECENT DEATHS.

THOMAS N. DE BOWES, M.D., a well-known surgeon of Brooklyn, N. Y., died on Feb. 7, at the age of seventy-one years. He was born in Ireland and was a graduate of Trinity College, Dublin. He received his medical degree from the University of the City of New York, and was one of the founders of St. Mary's Hospital, Brooklyn. In the Civil War he served as a surgeon in the Connecticut Volunteers.

HERMAN MYNTER, M.D., a prominent surgeon of Buffalo, and one of those who was in attendance on President McKinley after he had been shot, died on Feb. 9.

JOHN J. CONWAY, M.D., of Brooklyn, N. Y., died on Feb. 13, at the age of forty-three years. He was graduated from the Long Island College Hospital in 1890. He was a surgeon to the Brooklyn City Hospital and also to the Manhattan Elevated Railway Company.

BOOKS AND PAMPHLETS RECEIVED.

Four Lectures on the Nature, Causes and Treatment of Cardiac Pain. By Alexander Morison, M.D., F.R.C.P. (Edin.). Illustrated. Reprint.

Presence of Tetanus in Commercial Gelatin. By John F. Anderson, M.D. Bulletin No. 9, Hygienic Laboratory, U. S. Marine Hospital Service, Washington. September, 1902.

Laboratory Technique. Articles on Ring Test for Indol and Colloidum Sacs, by S. B. Grubbs, M.D., and Edward Francis, M.D., and on Microphotography with Simple Apparatus, by H. B. Parker, M.D. Bulletin No. 7, Hygienic Laboratory U. S. Marine Hospital Service. Washington. May, 1902.

The Medical Epitome Series. Obstetrics, a Manual for Students and Practitioners. By W. P. Manton, M.D. Series edited by V. C. Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

Essentials in the Construction of Hospitals for Large Cities. By A. J. Ochsner, B.S., F.R.M.S., M.D., of Chicago. Reprint. 1902.

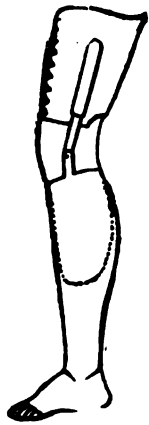
The Surgical Treatment of Tuberculous Peritonitis. By A. J. Ochsner, M.D., of Chicago. Reprint. 1902.

Provision for the Criminal Insane. By William Francis Drewry, M.D., of Petersburg, Va. Reprint. 1903.

Congenital Dislocation of Hips. With Report of Cases and Description of a Pelvis obtained Three Years after Successful Reduction by the Lorenz Method. By Edward H. Ochsner, M.D., of Chicago. Reprint. 1902.

The Life Within. Boston: Lothrop Publishing Company. 1903.

Report of the Connecticut Hospital for the Insane for Two Years ending Sept. 30, 1902.



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The following are the Courses provided in the Graduate Department for 1902-1903.

No.	Subject.	Instructor.	Place.	Time.	Fee.
1	Anatomy of the Joints	Dr. Dwight	Medical School	Special *	\$25
2	Dissection Courses	Dr. J. Warren	Medical School	After Nov. 1	25
3	Special Anatom. Instruction	Dr. Dwight	Medical School	Special *	Special *
4	Histology and Microscopy	Dr. F. T. Lewis	Medical School	Feb.	25
5	Elem. Human Embryology	Drs. Bremer and Woods	Medical School	Feb.—June	25
6	Advanced Embryology	Drs. Minot, Bremer, Lewis	Medical School	Feb.—June	75
† 7	Physiology	Dr. W. T. Porter	Medical School	Special *	Special *
† 8	Toxicology and Medico-Legal Examination of Blood	Dr. Wood	Medical School	Oct.—Jan.	25
† 9	Clinical Examination of Urine	Drs. Wood and Emerson	Medical School	Oct.—Jan.	20
† 10	Clinical Haematology and Examination of Gastric Contents	Dr. Hewes	Medical School	Oct.—Jan.	25
† 11	Physiological Chemistry	Dr. Pfaff	Medical School	Special *	Special *
12	Path. and Phys. Chemistry	Dr. Emerson	Med. Sch. or Boston City H.	Special *	Special *
† 13	Bacteriology	Dr. Ernst	Medical School	Special *	25
14	Practical Pathology	Dr. Councilman	Medical School	Special *	30-50
15	Pathological Histology	Dr. Councilman	Medical School	Special *	25
16	Pathological Anatomy	Dr. Magrath	Medical School	Special *	25
17	Neuropathology	Dr. Taylor	Medical School	Special *	25
18	Advanced Neuropathology	Dr. Taylor	Medical School	Special *	75-125
19	Surgical Pathology	Dr. Nichols	Medical School	Special *	25
20	Diagnosis of New Growths	Dr. Whitney	Mass. General Hospital	April	15
† 21	Comparative Pathology	Dr. Smith	Bussey Institution	Special *	Special *
22	Clinical Medicine	Dr. Vickery	Mass. General Hospital	Oct.—June	15
† 23	Clinical Diagnosis	Dr. J. M. Jackson	Mass. General Hospital	Oct.	15
† 24	Infectious Diseases	Dr. McCollom	Boston City Hospital	Nov.—Feb.	25
† 25	Intubation	Dr. McCollom	Boston City Hospital	Oct., Nov.	25
26	Sputum Analysis	Dr. W. H. Smith	Mass. General Hospital	Special *	25
27	Clinical Medicine	Dr. Joslin	Boston City Hospital	Nov., Dec., Jan.	15
28	Surgical Research			April — May	25
29	Special Surgical Work			Special	Special
30	Minor Surgery	Dr. Lund	Boston City Hospital	Special	Special
31	Minor Surgery	Dr. J. B. Blake	Boston City Hospital	April — May	20
32	Clinical and Operative Surgery	Drs. Warren, Porter, Beach	Mass. General Hospital	Nov.—May	20
33	Clinical Surgery	Dr. M. H. Richardson	Mass. General Hospital	Oct.—Feb.	20
34	Clinical Surgery	Dr. Mumford	Mass. General Hospital	Feb., May	25
35	Minor Surgery	Dr. Mumford	Mass. General Hospital	Feb., March; April, May	25
36	Clinical, Operative, Genito-urinary, Pathological and Minor Surgery	Drs. Monks and Thorndike	Boston City Hospital	Oct.—Jan.	25
37	Clinical and Operative Surgery	Drs. Munro and Lund	Boston City Hospital	Oct., Nov., Jan., Feb.	25
38	Genito-Urinary Surgery	Dr. Thorndike	Boston City Hospital	Oct., Nov.	25
39	Fractures	Dr. Scudder	Mass. General Hospital	Oct., Nov.	20
40	Surgical Diagnosis	Dr. Scudder	Mass. General Hospital	Nov.—Dec.	20
41	Genito-Urinary Surgery	Dr. Scudder	Mass. General Hospital	Jan.—Feb.	20
42	After Treatment	Dr. Scudder	Mass. General Hospital	Nov.—Dec.	20
43	Genito-Urinary Surgery	Dr. Watson	Boston City Hospital	Jan.—Feb.	20
44	Surgical Diagnosis	Dr. C. A. Porter	Mass. General Hospital	Feb., March	20
45	Minor Surgery	Dr. Balch	Mass. General Hospital	April, May	20
46	Minor Surgery	Dr. Balch	Mass. General Hospital	Oct.—Jan.	15
47	Clinical and Operative Surgery	Dr. Cobb	Mass. General Hospital	Feb., March	20
† 48	Orthopedic Surgery	Dr. Bradford	Children's Hospital	April, May	20
49	Clinical Obstetrics	Dr. W. L. Richardson	Boston Lying-in Hospital	Oct.—Nov.	10
50	Clinical Obstetrics	Dr. C. M. Green	Boston Lying-in Hospital	Nov.	25
51	Clinical Obstetrics	Dr. Higgins	Boston Lying-in Hospital	Nov.—Jan., May — June	25
52	Clinical Obstetrics	Drs. Newell, Swain, and Friedman	Boston Lying-in Hospital	Feb., March, April	25
53	Operative Obstetrics	Dr. C. M. Green	Boston Lying-in Hospital	Oct.	25
54	Operative Obstetrics	Dr. Higgins	Medical School	Oct.—May	25
55	Gynecology	Dr. Haven	Boston City Hospital	Special *	25
56	Gynecology	Dr. C. M. Green	Boston City Hospital	Special *	25
† 57	Gynecology	Dr. Storer	Carney Hospital	Jan., Feb., March	25
58	Gynecology	Dr. Storer	Boston Dispensary	Oct., Nov., Dec.	25
59	Gynecology	Dr. Storer	St. Elizabeth's Hospital	Oct., Nov., Dec., April,	25
60	Operative Gynecology	Dr. Davenport	Medical School	May, June	25
† 61	Pediatrics	Dr. Craigin	Children's Hospital	Special *	Special *
† 62	Pediatrics	Dr. Craigin	Children's Hospital	Oct., Nov.	20
† 63	Pediatrics	Dr. Buckingham	Children's Hospital	Nov., Dec.	20
† 64	Pediatrics	Dr. Morse	Children's Hospital	Jan., Feb.	20
† 65	Pediatrics	Dr. Morse	Infants' Hospital	Jan., May	20
66	Dermatology	Dr. Bowen	Infants' Hospital	March, April	20
67	Syphilis	Dr. Post	Mass. General Hospital	Oct.—June	25
† 68	Advanced Neurology	Dr. Putnam	Boston Dispensary	April, May, June	25
† 69	Neurology	Dr. Knapp	Mass. General Hospital	Special *	Special *
† 70	Neurology	Dr. Knapp	Boston City Hospital	Feb., March	20
71	Neurology	Dr. Walton	Boston City Hospital	April, May	20
† 72	Psychiatry	Dr. Cowles	Mass. General Hospital	March — April	20
† 73	Otology	Dr. Crockett	McLean Hospital	Special *	25
† 74	Otology	Dr. Hammond	Eye and Ear Infirmary	Special *	25
† 75	Anatomy of the Ear	Dr. Hammond	Medical School	Feb.—April	25
† 76	Clinical Ophthalmology	Dr. Wadsworth	Eye and Ear Infirmary	Nov.—Jan.	25
† 77	Ophthalmology	Dr. Standish	Eye and Ear Infirmary	Special *	25
† 78	Ophthalmology	Dr. Quackenbush	Eye and Ear Infirmary	Feb., March	25
† 79	Ophthalmology	Dr. Jack	Eye and Ear Infirmary	April	25
† 80	Rhinology and Laryngology	Dr. DeBlois	Eye and Ear Infirmary	Oct.—Nov.	20
† 81	Rhinology and Laryngology	Dr. Farlow	Boston City Hospital	Oct.—Nov.	20
† 82	Rhinology and Laryngology	Dr. Coolidge	Boston City Hospital	Jan., Feb., March	20
† 83	Hygiene	Dr. Harrington	Mass. General Hospital	April, May	20
84	Disinfection	Dr. Harrington	Medical School	Feb., March	20
85	Analysis of water, food, etc.	Dr. Harrington	Medical School	Special *	25
86	Pharmacology	Drs. Pfaff and Vejux-Tyrode	Medical School	Special *	Special *

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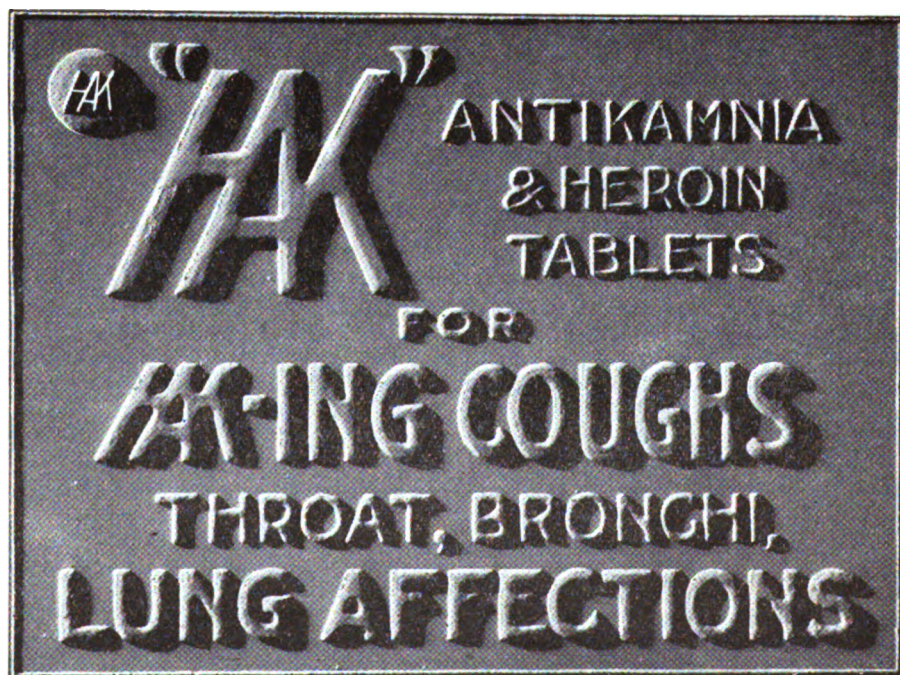
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Original Articles.

A FEW REMARKS ON BLOOD PRESSURE.

BY JAMES MARSH JACKSON, M.D., BOSTON.

Physician to Out-patients, Massachusetts General Hospital.

It is about three years since I first began to experiment with Gaertner's blood-pressure machine, and the results have been so satisfactory that I am led to say a few words on a subject which is just now exciting much interest.

I was very fortunate in getting a tonometer that was fairly accurate, though it has been necessary to test it from time to time with a mercury manometer (also Gaertner's) and to rearrange the dial. Although these instruments (I refer to the spring manometers) are very convenient, I should hardly care to recommend them for general use, as they vary greatly in accuracy, as must all spring manometers. If, however, a tonometer can be found that will stand the test with a mercury manometer, I do not see why it should not be accepted as a standard machine. It is certainly much more convenient and portable.

Whether or not this method of Professor Gaertner is an exact index of the actual blood pressure I am not prepared to say, but I believe that it is a sufficiently accurate measure of tension for all practical purposes, or at least gives us fairly accurate measures for comparison. It does not seem to me that the objection usually raised, namely, that the reaction looked for in the finger is largely dependent on the tension in the capillaries and that this tension is a very variable one, is of much moment. As I have noted it, the blush in the finger tip is almost instantaneous and takes place the instant the pressure on the arteries of the finger is sufficiently relaxed to permit the blood to flow by the obstruction. I do not see why this method is not the same as the Riva Rocci, the former utilizing the smaller, the latter the larger, arteries of the arm.

I have recently been using the Riva Rocci apparatus which Dr. Locke very kindly made for me, and have been comparing the results obtained by these two machines. As a rule the readings have been about the same, but occasionally there has been a wide divergence for some unknown reason, and I am not able to say which has been the more accurate. This is a matter which must be worked out carefully.

There have been several cases of marked arteriosclerosis in which the blood pressure with the Riva Rocci was very much higher than with the Gaertner, and I believe that the latter was nearer right, as the brachials in these cases were so rigid that it took great force to constrict them, whereas the smaller vessels of the finger seem to be less affected by the disease, so that in all cases of arteriosclerosis I shall continue to use the Gaertner.

Just here I should like to suggest that all records of blood pressure should be accompanied by the name of the instrument used, as otherwise some of the high readings in arteriosclerosis with the Riva Rocci might be very misleading.

Last week an interesting case of angina brachialis appeared at the clinic, and an attempt was made to take the blood pressure. As there were no brach-

ial or ulnar arteries to be felt, and as the radial was so feeble that it could scarcely be perceived and disappeared entirely during the attack of angina, we were obliged to give up the Riva Rocci and use the Gaertner. It was interesting to note that the blood pressure was lower during the angina, which is the reverse of what happened in Dr. Walton's case of intermittent claudication published last year.

Every one who intends to take blood pressures should be equipped with a mercury manometer of one form or another to start with. Then he should have the Riva Rocci armlet and the Gaertner finger ring, both of which can be used with the same machine. The advantage of this will be seen in what was said of the arteriosclerosis cases, and the same applies in patients with very fat arms or in whom the radial pulses for some reason are hard to find.

In order to have the readings taken by different observers fairly uniform, the following rules should be observed: With the Riva Rocci method the blood pressure should be taken with the patient in recumbent position; with the Gaertner method the patient may either lie down or sit up, but the finger should always be on a level with the heart. The patient should be under no mental excitement at the time of the reading, as otherwise an elevation of the blood pressure will be found. Two readings at least should always be taken and if they agree this may be considered accurate, but if there is a marked difference then there has been some mistake in the experiment, and other readings will have to be taken.

I should like to speak of a few observations which I have made in the course of my clinical work. In a series of cases of exophthalmic goiter which I have followed for over two years, and in which I used at Dr. F. C. Shattuck's suggestion bromide of quinine, I have found no variation in the blood pressure of any account. These cases (all women) have nearly all had a pressure ranging from 120 to 160 (Gaertner), that is, they were above the normal, but in none of the cases have I found a marked diminution of the pressure with improvement in the symptoms. None of these cases are absolutely well, but even those without symptoms still have a rise of blood pressure.

In one case of small cystic goiter the pressure has ranged about 160, whereas in a case of large cystic goiter which reached to the second rib the pressure was below normal.

It might also be interesting to note the range of pressure in the cases of chronic nephritis in which the operation of decapsulation of both kidneys was done. In 5 out of 6 cases which I had the opportunity of following there was a rise of pressure even with marked improvement in the symptoms. In one the pressure rose from 125 at time of operation to 210 at the end of two weeks. At this point digitalis was given on account of a failing pulse, and the tension soon fell to 180, which was contrary to my expectation, as I thought that the digitalis would maintain the high tension. As improvement set in at the end of another month the pressure again rose to 220. Three months after the operation the tension was 190, and the patient was in very good condition. The albumen had gradually diminished in amount from $\frac{1}{2}\%$ to a trace. This was a case of chronic diffuse nephritis.

In a case of chronic glomerulo-nephritis the tension rose from 100 at time of operation to 150 in a month, although there had been a great improvement of the symptoms and the albumen had gone from $\frac{1}{2}$ of 1% to $\frac{1}{16}$ of 1% in this time. One showed a drop in the pressure and that of only 20 mm., or from 170 to 150 in four weeks. These observations were all made with the Gaertner.

As an aid in diagnosis the blood pressure is fast taking an important place. We know, for instance, in arteriosclerosis the blood pressure is high; in chronic nephritis, especially of the interstitial type, the pressure runs very high, and in a way the amount of tension is a good index to the extent of the disease.

I remember one case in this connection which is of interest. A young girl came to my office complaining of headache and some dimness of vision, and on examination I found considerable enlargement of the heart and beginning retinitis, although she was still at work and made but little complaint. No edema was present, and examination of the urine showed no trace of albumen and the sediment was also normal. The blood pressure was 250, or as high as could be measured by the tonometer. I sent her at once to the hospital, as I could not explain her condition. Nothing more was found until a few days later, when a slight hyperemia was apparent in the urine. She died suddenly after a week in the hospital, and it was found that she had a tuberculous kidney with occluded ureter on one side and a normal but somewhat hypertrophied kidney on the other. Although this patient did not appear very ill until the last day or two, the blood pressure was a very significant sign.

Thus far the best use to which I have put the instrument has been in the demonstration of tension to the students. This has always been a hard subject to teach, but with a direct measure before them they have been much keener in their interest to perfect themselves, and the results have been very satisfactory. I have always taught them that the blood pressure in a young healthy man ranges from 100 to 180 mm. of mercury, but I have frequently found it as high as 150 in young men who, so far as I could ascertain, were perfectly sound. These same cases, however, are liable to considerable variation, and I think this ought always to be taken into consideration in all our experiments.

In young women the pressure is decidedly lower, and ranges from 90 to 110, so that while a pressure of 140 to 150 may be normal for a man it is abnormal for a woman. Elderly people almost always, so far as I have observed, have an elevated pressure, due for the most part to changes in the arteries, so one should not be disturbed in finding in a person of fifty years a pressure of 175.

Low pressures are uncommon, except in cases of shock and collapse, and it is with high pressures that we have to deal with principally. Pressures of 200 are not infrequently found, and should always be considered more or less dangerous, while pressures of 250 are very dangerous and are only seen in grave cases. One hears of much higher readings, but I do not believe that they are always accurate except, perhaps, in some bad head injuries. In the last year five of my patients with pressures of over 190 have died of apoplexy, and I now make it a rule

to warn the family of a patient with a tension above 190.

I regret very much that I did not have an instrument of high registering power in a case of apoplexy which occurred last year in my clinic, for I am sure the pressure must have been very high. The patient, a woman of about sixty, with marked arteriosclerosis and interstitial nephritis, had been coming to the clinic for some time, and I had made several readings of the blood pressure, which ranged about 210 Gaertner. One day she came in complaining of severe headache, and as I was taking her pressure I found it to be higher than my machine would register (250), and while I was making a third attempt to take it, to be sure that I was correct, she fell to the floor unconscious, and died within a few hours of cerebral hemorrhage.

In closing, I wish to urge on all who are doing clinical work, or who are teaching, the importance of this new measure of tension. There is a great deal to be learned, and there is no question but that it will be of great diagnostic value as soon as we arrive at more definite conclusions.

INTESTINAL OBSTRUCTION BELOW THE ILEO-CECAL JUNCTION.¹

BY THOMAS H. MANLEY, PH.D., M.D., NEW YORK CITY.

VARIOUS types of intestinal obstruction call for active surgical interference after tentative therapy fails.

During the past twenty-five years remarkable progress has been made in the direction of enlarging our knowledge of the diverse pathological characters of disease processes situated in the large intestine, from its joint with the ileum to the point where it passes externally at the anus. Moreover, aggressive and ingenious surgery of the intestine—comparatively a modern creation—has wrought a radical revolution in therapy here, and in this area of the alimentary canal it promises to accomplish more, in what was formerly a group of most distressing maladies.

SURGICAL EXPERIMENTS IN PHYSIOLOGICAL PROBLEMS.

Modern surgery points to the necessity of a modified conception of function in digestion, a revision of physiological teaching. It has recently been demonstrated that the complete excision of the colon or the stomach is not incompatible with full nutrition of the body; those who survived the loss of their stomachs even gained in weight and vigor. The colon is a long, sacculated funnel for the reception of the residue of digestion; it was formerly supposed to serve only as a reservoir for the *débris* and bye-products of alimentation.

From early infancy until late in life the terminal coil is more frequently the seat of functional derangement and organic disease than all other areas of the alimentary canal, from the pylorus down, and yet, until a recent period, only its rectal end, when diseased, was considered as worthy of exhaustive study by pathologists, and was but indifferently treated by practitioners.

¹ Read before the Hartford Medical Society, Hartford, Conn., Dec. 23, 1902.

POINTS IN THE ANATOMY OF THE LARGE INTESTINE.

The adult large intestine constitutes about one fifth the length of the intestinal canal, measuring about five feet. I have found by experiments on the cadaver that, without over-distention, its capacity averages 120 oz. — nearly a gallon. It quite completely encircles the abdomen.

Its position laterally is more or less fixed, but the transverse and sigmoid loops are capable of a considerable degree of movement. The gut is sacculated or pocketed, of a convoluted outline; it contains less muscular but much more fibrous tissue than the ileum.

Like the urinary bladder, the colon is capable of enormous distention. The nerve supply of the fixed anus is from both the sympathetic and spinal, the coil above from the sympathetic only. The arterial supply is from various sources; except at the rectal terminus its venous blood is all poured into the portal system. At either end the large intestine has a large expansion — at the beginning the cecum, and at the end the rectal ampulla; at each end, also, it presents openings influenced by muscular action.

The ascending colon is normally uncovered by peritoneum in its posterior aspect. This point needs special emphasis for various cogent surgical reasons. The descending is similarly invested, though the second part of the sigmoid, like the transverse loop, is entirely covered by peritoneum.

The rectum our latest writers very judiciously describe as that part of the large intestine below the peritoneal reflexion of the pelvis and the third piece of the sacrum.

TRANVERSE COLON.

The transverse colon usually lies on a line just above the umbilicus, but in cases of lax bellies, gastroptosis or hernia it may sink nearly as low as the pubis.

THE SIGMOID.

The usual descriptions of the anatomical relations of the sigmoid are radically faulty. The question has been lately raised as to whether it is U-shaped or has the double curve of an S. The fact is, it possesses no definite shape, because the length of it very commonly varies. Its central portion is most mobile. It may have a mesentery not more than two inches long, and hence it can scarcely move at all; again, and very commonly, the mesentery is so long as to permit the sigmoid to rise high above the pubis. In many operations on the appendix, the right tube or ovary in the female, the first coil to come into view is the distended sigmoid.

The large intestine nor any of its segments is ever completely empty and collapsed, as we find the bladder after urinary expulsion.

Of late years the anatomy of the sigmoid has acquired special importance, as it is being frequently utilized as a redundant loop of the large bowel, available for short circuiting in colic obstructions, or those stenotic conditions which formerly were relieved only by artificial anus.

The rectal end of the large intestine in its anatomical composition bears a close resemblance to the esophagus; it is a musculo-membranous tube; in both sexes it lies in close contact with other important

passages; its movements are voluntary; it is a highly vascular structure.

Sexual distinctions are obvious in the relations of the parts here. For physiological reasons, we can readily understand the rectum's greater exposure to trauma in child-bearing women; and from the near position of the vulva to the anus, the ease of infection in septic vaginal discharges. By manipulation through the vagina, one may explore the anterior wall of the rectum to where the peritoneum is reflected over it.

From the cecum down, we will note that the large intestine is constructed rather for strength than facility in movement; it is powerfully supported by a broad band of fibrous tissue on its anterior aspect, and dense circular bundles at its sacculations; its mucous membrane is everywhere firmly adherent except in the rectum.

ATYPICAL DEVIATIONS.

Dr. W. W. Babcock declares that of all the fixed viscera of the abdomen, the large intestine shows deviations from the usual, most frequently. In the fetus the gut is nearly straight. Jacobi has pointed out its larger proportional volume in young children. It varies in length from 40 to 80 inches; it bears no relation to the development of the individual or the length of the small intestine; its position, length and capacity vary widely.

Deviations are most common in the caput coli, the transverse colon and in the sigmoid. Babcock discovered variations in about 20% of subjects. In 52% of adult bodies Treves found neither an ascending nor descending mesocolon; Jessett found this arrangement in 50 out of 100 subjects. The ascending colon normally measures about eight inches, but it may more than double this measure when it sinks low in the abdomen or is carried out through the abdomen in hernia. Again, *per contra*, when the fetal type persists, it has practically no length at all, but lies on the right kidney under the diaphragm. The transverse colon is 18 inches long in most bodies, but in various states of laxation and displacement it may easily double this figure. The length and position of the descending colon are fairly constant.

According to Illoway, the sigmoid loop is of the narrowest caliber, there being a marked constriction at the third piece of the sacrum where the rectum begins; this is the site of "O'Beirne's valve."

Reeve notes the remarkable range of movement in the colon when overfilled, and says that the distended sigmoid may rise up to the iliac fossa, or make excursions up to the under surface of the liver. The frequent uncertainty of the sigmoid's position sometimes renders the construction of an inguinal anus tedious and the passage of long rectal tubes difficult and dangerous.

Morris gives the length of the mesosigmoid as from one to one and a half and two inches.

Byron Robinson found a mesosigmoid, in the first third of this loop, absent in 80 out of 300 autopsies.

A strange anomaly, strictly speaking, is the absence of the large intestine; that is, the gut may be no larger, nor even as large in caliber, as the small intestine.

Some years ago I made an autopsy on an old woman whose small intestine was but 10 feet long; the caliber of the bowel was very large. The colon measured 4 feet 3 inches; it everywhere had a long mesentery, and was only about half the diameter of the ileum.

In a large, muscular young woman mortally injured by a fall, I found, on autopsy, a voluminous, freely movable cecum, as big as a fetal head, lying up under the diaphragm; the diameters of the transverse colon were no greater than those of the finger. From the splenic flexure down to the sigmoid, the dimensions of the descending colon were normal. The sigmoid was a vast movable pouch, with a very long mesentery.

Dodd found the transverse colon in an adult subject no larger than a lead pencil, and Formad saw the caput coli of a man as big as that of an ox.

PHYSIOLOGY: THE RÔLE OF THE LARGE INTESTINE IN ALIMENTATION.

If the colon only serve the purpose of receiving and discharging the residue of digestion it is self-evident that the surgical sacrifice of part or all of it should not, in any serious manner, impair the nutrition of the body; that the danger lies wholly in operative procedure, in its immediate effects on the system. From the after-histories of some of those cases in which there has been partial or total colic resection, we must infer that life may be continued without this loop of intestine.

Lilienthal swept away the whole colon from the ileocecal valve to the sigmoid, and now, two years since, he informs me that his patient is in good health and has two natural evacuations daily.

But it may be well to determine, if we can, whether or not digestion is ended at the isthmus of the cecum. That one may survive without it does not settle this problem by any means, as we may dispense with all our teeth and yet insalivate the bolus; we may part with our tongue and larynx and yet possess audible speech. Are the colon's secretions, its bacterial elements and the chemical changes of its contents essential or even auxiliary to assimilation of food and nutrition of the body?

Sir Michael Foster says they are. He says the colon is something more than a sewer vent, that digestion is not completed when the ingesta reach the cecum. He notes the putrescent elements in the colon, induced by fermentation changes, brought about by the secretion of its own mucous membrane, with the admixture of acid-producing microbes, the presence of skatol, a bacterial product, and marsh-gas. According to this celebrated physiologist, the bile is not an antiseptic in its strict sense, but "only modifies bacterial action in the mixed intestinal juices."

Cellulose, only in part digested by the small intestine, is often completely reduced and absorbed by the colon.

Prof. Austin Flint regards the digestive changes in the large intestine as "unimportant in physiological conditions; as hardly anything but water is absorbed by its lining membrane."

The clinical aspects of this problem point another way. Hence we must turn to the practical side of the question as physicians and surgeons, rather

than depend entirely on either chemistry or physiology.

We all are familiar with the extraordinary absorbing power of the large bowel in taking up fluids, solids or gases; several medicinal substances act more promptly and with greater energy by the rectum; ether anesthesia may be effected by this channel; for weeks an invalid may be fed from below, by nutrient enemata; gelatin, cellulose, egg-albumen, the proteids of milk, saccharine liquids and alcohols diluted, being all reduced and absorbed in the large intestine. In this respect—its physiological aspect—the colon so widely differs from the bladder, which in the healthy state absorbs absolutely no materials of any description. Large and repeated flushings of the large intestine are exhaustive in the normal state by the waste which they involve, but in coprostitis, a good clearing out exhilarates and strengthens.

Goodhardt, a surgeon of prominence and large experience, regards "the colon as the most important segment of the alimentary canal, possessed of great resorbing power, and always a very active agent in digestion."

The movements of the large intestine are languid, entirely dissimilar to those of the ileum. In the latter the peristaltic wave is muscular and active; in the former it is much more complex. On exposure in the abdomen of the living animal, while we may note the intermittent wave of the ileum, the coils of the colon are still. At a fistulous opening of ileum near the cecum Goodhardt saw chocolate appear in five minutes; Grad saw swallowed carmine appear in same situation in fifteen minutes.

The most conspicuous forces in the action of the colon are (a) *vis a tergo* force, transmitted from the ileum; (b) gravity; (c) a vacuum on evacuation of the rectum; (d) contraction of the colic walls, and (e) the compressive energy of the diaphragm and other abdominal muscles.

Colicky spasm in stenotic obstruction of the colon, with energetic contraction and peristalsis, we can often see and feel. In order here to force the fecal current through the strictured or narrowed part, the colon's walls are powerfully reinforced by marked hypertrophy.

STENOTIC OBSTRUCTION FROM ORGANIC CHANGES IN THE WALLS OF THE INTESTINE.

Mechanical impediment to the intestinal current, depending on structural changes in the walls of the gut, or uncomplicated stricture of the intestine, occur by all odds with greater frequency in the large, rather than the small intestine. It is said that about 5% of cancer cases involve the intestinal tract, 80% of these seizing on the rectum.

Nothnagel, in 41,881 autopsies in Vienna, found cancer of the large intestine 326 times, in the small intestine 17.

Hypertrophic tuberculosis, according to one noted author, leads to intestinal lesion, with greater frequency in the small intestine; Eisenhardt, in 96 cases, found it to occur in the large intestine but eleven times, in the sigmoid, once. Harris says that tuberculosis of the rectum never induces stricture.

Paul Daniels, however, gives a much wider range

for the ravages of the lesion, and observes that it occurs with greater frequency in the large than small intestine, especially in the rectum, "where it often can be distinguished from cancer with difficulty; the infiltrate is mostly submucous. It may be a cause of rectal stricture."

Daniels' experiences with respect to the rectum are in entire accord with my own.

Tubercular infiltration of the submucous tissues, or open ulceration just within the anus, certainly does present several of the common characters of malignancy. It is difficult, if not sometimes quite impossible, to establish its precise identity here, because the specific bacillus eludes detection; but a lesion primarily tubercular, it is believed, in various situations may take on malignant changes; in fact, it may be said that all acute tubercular processes are essentially malignant in the fullest acceptance of the term. Bovis records three cases of syphilis of the large intestine, degenerating into malignancy, and why may not tuberculosis take the same course?

Cancerous stricture of the large intestine occurs most frequently in the lower third of the rectum. Jessett alleges that "in the lists of mortality, cancer of the rectum holds a position next to that of the tongue."

The next favorite site is in the cecum and near the hepatic flexure. It seldom seizes in the transverse or descending colon and very rarely on the sigmoid loop. I have only seen two cases of the disease in the sigmoid, one in an aged physician. In 1,908 cases of malignant disease entering the London Cancer Hospital, 8% involved the rectum.

Williams, in 5,556 cases of malignancy, found the rectum involved in 4.4%. In the rectum, when detected early, the cancerous mass may take the form of a hard, raised papilloma, localized in plaques or producing an annular infiltration under the mucous tunic. It is seldom more than a finger's length from the sphincter. Quain well described the "annular knot" as a circumscribed scirrhus; he said the narrowed part seemed as if tied by a string; others have described it as the tied neck of a sack. The intestine also becomes widely distended and dislocated, with its walls greatly hypertrophied; finally infiltration occurs, with breaking down, a consecutive mixed infection sometimes provoking abscess or fistula, or opening into the nearest hollow viscus in the abdomen or pelvis. It is a curious pathological fact that the malignant infiltrate from uterine cancer very rarely if ever produces stenosis of the rectum.

Luetic stenosis of the rectum usually belongs to the third stage of syphilis, but it may appear at a long interval after all the distinctive features of the disease have vanished.

Sexual influence plays a dominating rôle in luetic diseases at the anal portal. Pæen found the proportion of anal chancre as 15 in the female to 1 in the male. Syphilitic deposits at the anal verge are first located in the submucosum, to later break down and infiltrate.

Gonorrheal infection is regarded by Pæen, Gerard and several other pathologists as a fertile source of ulcerative proctitis and rectal stricture. Dornejean believes that it occurs more frequently in males than is generally believed. Torturing

pruritus, distressing tenesmus and free bleeding are said to accompany the initial stages. All authors agree that it is most frequent in the female. It may provoke phlegmon or fistula. Usually it pursues a chronic course and tends to stricture; hemorrhoids or proctitis in the male, which may lead to prostatic abscess; infection may spread into the base or neck of the bladder and extend into the tissues of the pelvis. Monod and Litten have seen this infection extend from the rectum to the uterus, the tubes and broad ligament.

Again, Rothrock alleges that gonorrheal infection of the female adnexa may extend downward through the pelvic lymphatics and engage the rectum.

Gonorrheal syphilitic or tubercular ulcer is nearly always lodged low down in the rectum, the cicatrization following repair leaving various degrees of stenosis.

Stricture of any area of the large intestine is very rarely, if ever, impermeable. There is always a passage through the tightest, for fluids or gases; but this opening is sometimes blocked by elements of the feces, or temporarily closed by spasmodic contraction. It may be said that this type of stenosis is most frequently incomplete, but when stuffed with plugs it is complete, and full stasis exists.

CLINICAL HISTORY OF STENOSIS OR OBSTRUCTION OF THE LARGE INTESTINE.

Intestinal obstruction, where the large intestine is involved, is never sudden, never acute, the gut is not strangled nor is there abrupt vascular asphyxia, it is never trapped, though it may be twisted or telescoped. The *etiology* of obstruction in the small and large intestine is totally dissimilar as a general rule; as in the former, strangulation, with rare exceptions, depends on *extrinsic* influence, the latter on *intrinsic*.

AGE.

Acute intestinal obstruction involves rarely but the small intestine, and occurs most frequently in early life; on the contrary, stenosis of the large bowel is never other than insidious in its onset, it is chronic and is generally a lesion of middle or advanced age.

The economy in a most striking manner adjusts itself to the effects of colic or rectal impediment, to coprostasis. For months and years the colon may very imperfectly empty itself, large fecal masses lying in its coils, the individual's health meanwhile suffering little if any impairment; the appetite is good, and there may be a blissful ignorance of colic stasis or impaction.

But in time, as the stercoral current comes to complete arrest, the crisis has arrived, and distressing symptoms gradually set in, or one may go to the grave never realizing the real character of his malady. In the mortuary records we may, perchance, find the case entered as "inflammation of the bowels or peritonitis."

TREATMENT: PALLIATIVE AND RADICAL.

While we cannot fail to note the striking contrast in the etiology and pathology of stenosis in the large and the small intestine, yet in extreme cases

of either its radical treatment is on similar lines. In the former, however, there is seldom imperative urgency, time is permitted to critically study the case, and work out the best plan for operative procedure; while in the latter immediate and decisive action is necessary for the adoption of such a course as is best calculated to relieve suffering and prolong life.

Palliative, tentative measures. — Always mindful of the possibility of error in diagnosis, of the wonderful powers of nature to overcome simple stenosis of every variety, the latency, insidiousness and chronicity of various types of cancer of the large intestine, and, moreover, not closing our eyes to the large mortality following surgical intervention, we will do well, in a considerable number of these cases, especially in old people, or if doubt exist, to first patiently and perseveringly test the efficiency of such therapeutic measures as will in no manner jeopardize life and may possibly effect a cure.

Eight years ago a physician brought to me, for examination, his father, who had for some years back been suffering from tenesmus, with frequent sanguino-mucoid discharge from the rectum. The gentleman was a preacher of the gospel, of good physique and enjoying vigorous health, sixty-two years old, of good habits. About two inches from the anus I came on a hard, stony growth in the posterior and lateral walls of the rectum. There did not appear to be any sigmoid impaction. My prognosis, of course, was sombre, and early excision was advised. But the advice was declined, no operation has been done, and he, now in his seventieth year, still occupies his pulpit. I am entirely at a loss to understand how he has survived, though possibly my diagnosis of cancer was an error. This case well bears out the view of Fitz as to the remarkable chronicity of pipe cancer in elderly people.

Inflammatory changes and spasm commonly attend the propagation of cancer of the bowel. Psychological impressions, as well as various sedative remedies, powerfully influence this phenomenon. Hence, however unfavorably a case may impress us, we should always endeavor to inspire confidence and hope. We may then turn to constitutional and local remedies.

Sedatives, local and constitutional, are of the greatest value, opium being well to the front. Packard notes the useful virtues of escerine $\frac{1}{10}$ gr. doses. Belladonna, because of its relaxing effect on smooth muscle, is said to be highly efficient. Assafetida, in hysterical cases, blended with other sedatives is highly useful. Laxatives are usually ruled out, but small doses of opium and calomel may effect a large, free and painless motion when other medicaments have failed.

Quicksilver. — McKean Harris records two remarkable examples of success with the employment of quicksilver. One of his patients was sixty, the other eighty. In the first, high enemata and hot stupes had failed; the extent of abdominal distention was great. A half pound of quicksilver was given, this was followed every hour by a grain of opium. The next day the patient had a large evacuation with complete relief. The second case was a desperate one; the same treatment instituted with free and full evacuation on second day. In neither

case did salivation follow. Harris recommends this weighty charge in those who refuse operation, or who are not in a physical condition to sustain it. Hot stupes, kneading the abdominal walls, massage, inunction of mercury, or electrization are all, judiciously employed in appropriate cases, valuable adjuncts in treatment.

I have found that the well-oiled, warm hand, by deep but gentle kneading over the course of the colon gives great relief. It stimulates the languid bowel to fresh contraction, subsequent ease succeeding from the escape of gases.

Rectal enemata and instrumental dilatation are most helpful means of relief in practically every variety of fecal stasis depending upon a contraction of the bowel. Their employment, however, must be governed by a judicious discrimination. Warm medication, oleaginous or saponated clysters are useful and afford great relief, quite regardless of the site of the stricture. They tend to overcome spasm; more or less of the fluid passes beyond the stricture or occlusive agent, in this way clearing the passage of scybulous plugs of feces, and thus permitting of a later escape of softened excrement and gases; with the discharge of the enema, large audible gusts of wind escape from the anus. The passage of the fecal elements tend to keep the lumen of a narrowed intestine open. The injection of fluids not only cleanses the bowel, but also, in a measure, widens the strictured part.

We will do well here to employ the long, stiff, rectal tube with caution, lest we inflict serious harm. The following case illustrates this: A bartender was seized at midday with severe colic; being constipated, he took an injection, but without relief. When the physician was called he gave him a "high enema" with the long tube; but his alarm was great when he discovered that it only increased his patient's agony, and none of the fluid came down.

At ten the same night, I made an abdominal section. A large hole had been punctured through the free loop of the sigmoid, and the peritoneal cavity was widely distended by soapsuds, sweet oil and the feces. He sank before midnight.

Nor should we overlook the enormous energy of hydraulic pressure when we charge the colon by the piston, irrigating bag or other means.

A young carpenter came under my care at Harlem hospital last spring, who, to simplify things and save trouble, fastened a rubber tube to a faucet in the bath-tub, lay down, passed the nozzle up his rectum, and let the water on. "All of a sudden," he said, "I felt something burst in my stomach." He quickly pulled the tube out, but too late; his agony was so great he was unable to leave the tub. He was immediately brought to the hospital in mortal shock, to die three hours later. On autopsy a large rent was discovered on the upper surface of the transverse colon, and the peritoneal cavity was found to contain fully two gallons of water with an admixture of feces.

Dilatation of any segment of the long intestine except the rectum, by bougies or sounds, is a reckless proceeding, and in cancerous infiltration it can be only productive of much harm or grave consequences; but in tubercular, syphilitic or gonorrheal stricture of the middle or lower third of the rectum it is often a very efficient agent, both for relief and

sometimes cure, but we should not resort to it if the mucous membrane is either inflamed or ulcerated, and those which are not so complicated are very few indeed. Tierlink advises the rejection of rigid sounds here, "because their introduction is not without danger to the intestines."

I have seen mortal shock follow the forcible, vainless effort of canalization of a scirrhus in a firmly strictured rectum.

(To be continued.)

THE TREATMENT OF HEMORRHOIDS.

BY JOHN O'CONNOR, M.A., M.D., DUBLIN UNIVERSITY,

Senior Medical Officer, British Hospital, Buenos Ayres, S. A.

IN 1894, when first perusing the details of Whitehead's operation in Sir Frederick Treves' "Operative Surgery," I was so much struck by the thoroughness and simplicity of the procedure, and by its sound practical and pathological basis, that I resolved to give it a trial, and the results obtained in 150 operations amply confirm the claims of its distinguished author.

Like Mr. Whitehead I am happy not to have to report a single death, and in only five instances did any appreciable contraction supervene. In six an annoying after-effect, "weeping bottom," caused discomfort. These complications occurred in my earlier cases, and were due to injudicious encroachment on the skin when separating it from the mucous membrane. I have now learned how to prevent these troubles, and I must here acknowledge my indebtedness to my respected teacher, Prof. Charles Ball, for his paper, in which he drew attention to the best site for the application of the scissors. He advocated circular division along the apex of the rosette; this I found somewhat superfluous, as too much tissue remained and developed into rugosities, which had subsequently to be trimmed off. But unquestionably he did great service to Whitehead's method in warning operators not to infringe on the skin area.

I do not consider Mr. Whitehead claims a fraction too much for his operation, for it not only fulfills all that he vouchsafes, but possesses the further important advantages: synchronous removal of fissures, ulcers or polypi, which not infrequently attend pile formation, and if properly performed leaves no raw, secluded stumps, which are continually subjected to traumatism by passing feces, and which occasionally become converted into chronic ulcers or fissures.

Also the practice of leaving raw surfaces, with contaminated unabsorbable ligatures, is inconsistent with the ideas of modern surgery, and I cannot see any justifiable reason for treating the mucous membrane of the most sensitive rectum in a manner which would be almost considered medico-legal if done on the skin.

I have performed Whitehead's operation in old and adult, weak and strong, plethoric and anemic indiscriminately, and I regret I have not performed it more often, for many cases which I treated by ligature turned up with a recurrence within five years, and others found it difficult to get their "inward sores" to heal. Not a single relapse has followed Whitehead's operation in my practice.

In the latest edition of "The Operations of Surgery" over half a page of criticisms is devoted to this method, not a single one favorable. To any one like myself, accustomed to the procedure, it is hard to realize that Mr. Jacobson's condemnation refers to such a deserving operation, and, with all due deference to the most conscientious of surgical authors, I have a suspicion that he has departed from his usual custom in this instance, and has not balanced his criticisms on the scales of his own personal observation.

He commences by stating that the operation is "needlessly extensive and severe," at the same time he does not deny Mr. Whitehead's contention that the extent is necessary in order to effect a radical cure, and as all other operations are at best only temporary expedients, it is absurd to judge the extent of one by the other. And as to its severity, my personal experience entitles me to state that it is a matter entirely depending on the capacity of the operator. I maintain no excessive hemorrhage takes place if the operation is performed according to the rules which govern modern surgery, combined with the absence of what Sir Frederick Treves describes as surgical delirium, which of course is hopeless.

Again, "the time required for the operation is an objection this process takes on an average at least thirty minutes, where a skilled surgeon can operate with the ligature in less than five minutes," the value of the first part of this sentence may be determined from the following: During the past twelve months my colleague, Dr. Phelps, and myself have operated on 26 cases. The total time occupied was 828 minutes, or an average of twelve and one-half minutes to each, the maximum time taken was twenty minutes (in only one case) and the minimum five. Consequently I am unable to reconcile Mr. Jacobson's statement with our experience, unless there is a considerable difference in appreciation of the standard "skilled surgeon."

"The operation by ligature or by clamp and cautery, carefully performed, gives most excellent results, and in answer to Mr. Whitehead's argument that as long as this diseased area is left to reproduce piles over and over again, no permanent cure can be expected, I may say that I have always found that after one of the above operations has been properly carried out, the patient can easily prevent recurrence by attention to common-sense details in daily life . . . Finally I know of a case in a young, healthy patient fatal from blood poisoning." It is difficult to estimate the meaning of "most excellent results" from the operative standpoint if it has afterwards to depend on frail human nature to carry on the never-completed cure. Surely with the plethora of uterine monomaniacs in the world, there can be no necessity for creating a male class with rectum on the brain.

And as to the statistical value of an isolated death I should like to mention that the first case of piles on which I ever operated died from pyemia on the tenth day, after a combined ligature and clamp procedure. Yet, notwithstanding such an unpropitious début, I have since operated on hundreds without another fatality. I have little doubt that Mr. Jacobson's case and mine perished from the same cause, most probably dirty finger nails, quite irrespective of the method employed.

In the following description I may have introduced a few modifications which practice dictated, yet all claim as to originality must be unreservedly reposed in the famous Manchester surgeon whose practical genius has endowed surgery with two classic operations—excision of tongue and excision of hemorrhoids.

The patient is usually given a few days' rest in bed, during which the bowels are freely evacuated, warm mercurial sitz baths are given night and morning, and mist. calcii chloridi thrice daily internally. Chloroform having been administered—

(1) Artery forceps are applied to the four cardinal points of the rosette, or if the case be non-protrusive, the forceps are applied at same points about one third of an inch from skin margin. The assistant by making traction on two adjacent forceps removes the rugose condition, and brings the line of junction of skin and mucous membrane readily into view, while I divide around with scissors about one sixth of an inch from skin.

(2) The mucous membrane is next separated from underlying structures by passing the left index finger into rectum, which acts as a most efficient guide, while, with a blunt dissector, and an occasional snip of a scissors, the mucous cuff is raised, and separation carried well above pilous zone. So far there is generally very little hemorrhage, but if any should occur it is immediately ligated with catgut. Care is necessary during this part of the operation not to injure the sphincters by any reckless scissoring. If the mucous membrane is divided deep enough at the commencement the blunt dissector and fingers do the rest.

(3) By the four artery forceps originally applied, the cuff of mucous membrane is drawn outwards, and it is transversely divided above pile area. In doing this it is most necessary to determine the extent of each scissors snip by the amount of hemorrhage, every spurting vessel must be at once caught up in forceps, and by working round in this manner it is surprising how little blood is lost. When the cuff has been removed, each bleeding point is ligated with catgut. I usually retain a few forceps in position after ligation, as they are useful during the next move; namely, approximation of mucous membrane to skin.

(4) All hemorrhage having been effectually arrested, the part is well irrigated with warm salt lotion, and the mucous membrane is attached to skin by a continuous catgut suture.

If there is a key to success in this operation, it is not to draw this suture too tight, for, if so, necrosis of tissues follows. And under no consideration should this suture be utilized as a suture ligature to choke hemorrhage, for it invariably fails in such an object, collections of blood take place beneath mucous membrane, and within forty-eight hours the whole part is converted into a swollen, strangled mass. It would be superfluous to mention what follows.

After a final irrigation the wound is dried, a morphia suppository inserted, and iodoform gauze applied, which is changed daily. A few belladonna pills are given on third evening, followed by a dose of castor oil on following morning. The male nurse cleanses the part after each motion, and when suture loops appear too tight he snips them

through. If any separation of edges occurs a warm mercurial sitz bath is given night and morning, and afterwards the patient is dressed with borated talc or zinc powder. By careful attention to the wound we are enabled to discharge all our cases with a new and dry anus within the fortnight.

I have so far purposely omitted mentioning what has heretofore been considered an essential preliminary in these operations—forcible dilatation of the sphincters. For a long time past I have abandoned it, as it is quite unnecessary, and so disturbs and magnifies the condition of things as to render Whitehead's operation apparently a formidable task.

In cases with prolapse sufficient dilatation occurs during operative manipulations for all practical purposes. And I find I can perform a far neater job without going through the performance so graphically depicted in "The Operations of Surgery."

When no prolapse has occurred, the assistant introduces his index fingers into rectum, and gently dilates orifice until the piles protrude.

"Other's follies teach us not
Nor much their wisdom teaches,
And most of sterling worth is what
Our own experience preaches."

Clinical Department.

THE USE OF CARGILE MEMBRANE IN THE NOSE IN ORDER TO PREVENT ADHESIONS.

BY HARRIS PEYTON MOSHER, M.D., BOSTON.

NEXT to the abdominal cavity, the nasal cavity is the most liable to be the seat of adhesions. In the abdomen adhesions often give pain and occasionally cause obstruction; in the nose they rarely cause pain, but often do cause obstruction. The anatomical peculiarities of the two cavities especially favor the formation of adhesions. In one you have the constant contact of two serous surfaces, in the other their occasional and often prolonged contact.

Adhesions in the nose cannot be made light of. On account of them the simplest operative procedures not rarely result disastrously. The direct cause of their formation is readily explained. If the operation, for instance, is the removal of a spur, the physician instead of wounding the nasal mucous membrane only at the seat of the operation also wounds the mucous membrane of the turbinate opposite. This is not recognized, and the manipulation which was undertaken in order to relieve obstruction ends by increasing it.

It is in the use of the cautery, perhaps, that one is most liable to have such an accident happen. On the other hand men who do the major operations on the nose where much tissue is removed are prone when they come to the less severe operations, like the correction of deformities of the septum, to overlook the importance of adhesions and to have their results marred by them.

Many methods have been advocated for dealing with adhesions. By far the most satisfactory is the removal of the band with as much of the basal tissue as possible. In a roomy nose this is easy to

do, but since from the very nature of things the majority of adhesions occur in narrow noses this method of wide excision is not often practical. If you dissect out an adhesion in a narrow nose only to have the reaction which results from the trauma carry the turbinate over to the septum and hold it there for a while, the adhesion is sure to return. A variety of substances, especially strips of rubber, have been used in the nose in the hope of keeping apart the two raw surfaces long enough for the stumps of the adhesions to skim over with mucous membrane. The splint must stay in the nose a long time in order to accomplish this, and when it is taken out it is often found that the pressure of the splint has caused new ulcerations and has established a vicious circle which it is very hard to break. Films of rubber have been found difficult to keep in place. The same is true of paper. The treatment of nasal adhesions, therefore, has reduced itself to this: generous excision when possible, and when it is not, to make a quick, clean cut through the adhesion. The idea of the latter is to do as little trauma as you can, in order that the resulting reaction will be slight and so permit a little of the adhesion to remain ununited. This process must be repeated again and again until the whole is separated and the former attachments of the adhesion are covered again with mucous membrane.

Within the last two years an animal membrane made from the peritoneum of the ox has been coming into use in abdominal work for the purpose of preventing adhesions. It is called after the name of the inventor Cargile membrane. The originator's name for it, "animal velum," describes it well. It looks much like gold beater's foil, and comes sterilized in a double envelope. Experimentation has shown that when it is applied to the raw service of the bowel it adheres without any supporting stitches, and forms an artificial peritoneum. Further, it has been demonstrated by killing animals which have been previously operated on that it is successful in preventing adhesions. Another use for it in abdominal work is to pack it about gauze drainage and on the edges of the incision where this is left open. The advantages of this procedure are obvious. The membrane possesses, also, the valuable property of stimulating and conducting the growth of epithelium.

Some time ago I tried the membrane in the nose, hoping to duplicate some of the results which had been obtained with it in the abdomen. I happened at the time to be working on a large post-operative adhesion which had been sent to me. I had gained a little on it by repeatedly cutting it through. Then I began with the membrane, and made quick and satisfactory progress. At once it was evident, however, that it could not be used in the nose exactly after the manner in which it was used in the abdomen, because it was very hard to make a single layer lie on the cut surfaces. With the bowel flat before the operator this is easy to do, but in a narrow nose the breath of the patient crumples the thin tissue into a tangled mass. If a drop of blood touches it the same thing happens. I found, however, that by folding the membrane into a wedge-shaped strip several layers thick, it would introduce more easily, and that I could then pack it firmly between the two cut ends of the adhesion. Packed in

securely in this way, much after the fashion in which one calks a seam, the membrane will stay in place for several days before it needs to be replaced. Since using the membrane on this case I have given it a rather extensive trial, and have found it to be of much help.

I have used it on turbinates after cauterizing, in order to keep the cauterized turbinate from cauterizing the septum opposite, and I have used it on the raw surface left by sawing off a spur. Other uses in the nose which readily suggest themselves are: As a dressing on the septum after the operation for the correction of deflection; as a sleeve for a packing which has to be left in the nose for any length of time; to hold down flaps of mucous membrane after the submucous dissection of cartilaginous spurs; as a guide and stimulant to the growth of epithelium in order to prevent the formation of a perforation, and in order to help toward the closure of perforations after the refreshing of their edges; and as a dressing for the cartilage of the septum whenever it is found to be exposed.

GONORRHEAL URETHRITIS WITHOUT SYMPTOMS.

BY ARTHUR L. CHUTE, M.D., BOSTON.

A FIRST attack of gonorrheal urethritis is usually a condition which is not easily overlooked by a patient; however, it may occasionally be so insidious, both in its onset and course, that even an observing person may not be aware of infection until some time after it has taken place.

Whether the condition which existed in the following cases is to be ascribed to an unusually high resistance on the part of the patient or to infection with a small number of unusually weak organisms, I shall not attempt to say. Perhaps neither is the proper explanation of this rather unusual condition.

The following cases illustrate very well the latency which may at times occur in gonorrheal urethritis:

CASE I. A student, twenty-two years old, who was seen by me about two years ago. He had chancroids a year before. He had been exposed to the possibility of infection many times, and from many different sources, but with the exception of the chancroids was unaware that he had had any venereal trouble. He never had any urethral discharge, ardor or frequency of urination. A week before he was seen, he noticed a slight swelling in the tail of one epididymis; there was also slight tenderness. A few days later the same condition appeared in the other epididymis. A short time before these swellings were noticed, a fine red eruption appeared on his body and the backs of his hands. This eruption itched a good deal. At the time of observation each epididymis was about the size of a pecan, rather hard, neither one especially tender. There was a feeling of uneasiness in both spermatic cords. No discharge, moisture or puffiness to be seen at the meatus.

He said that the fine red eruption had not changed since it first appeared. For three or four days previous to observation he had been taking ten grains of iodide of potash three times a day. The iodide had been given, because, in the absence

of any history of urethral infection, the combination of epididymitis and a rash had been suggestive of syphilis to his physician. This patient's urine contained shreds, which when stained showed gonococci. Between his fingers were burrows of scabies. These findings made the nature of the epididymitis and rash perfectly clear. The rash disappeared under the use of sulphur ointment; the double epididymitis ran the ordinary course of subacute gonorrheal epididymitis. Some days after the date of first observation there was a slight but noticeable urethral discharge.

This man was of good intelligence, feared he had syphilis and was most anxious to do everything in his power to clear up the diagnosis. Even after he was satisfied that he had gonorrhea, he was equally positive that there had never been any discharge, ardor or frequency. He could give no idea as to the probable duration of the disease.

CASE II. A boy eighteen years old, who never had any previous urinary or venereal trouble. His last and only recent exposure had been sixteen days previous to the time of observation. Until the afternoon of the day preceding he had had nothing suggestive of urethral disease; he then suddenly became unable to pass urine. When seen the next morning the retention had been absolute for about eighteen hours. He was in a good deal of pain, with his bladder distended to within one and a half inches of the umbilicus. The lips of the meatus were not puffy, a very little secretion was, however, expressed from the urethra, which on staining showed a few gonococci. His urethra was irrigated with a solution of boracic acid and a catheter passed; after emptying his bladder, it was very thoroughly washed.

His prostate was found enlarged, hot and very tender. Suppositories of opium and belladonna, one half grain each, were ordered, also hot rectal irrigations, hot sitz baths and rest in bed; there was no recurrence of the retention, though the prostatitis and urethro-cystitis gave considerable trouble for some little time. As soon as somewhat relieved he ceased attending the clinic, and was lost sight of.

In this boy the infection had been entirely without symptoms until it had reached the prostatic portion of the urethra and extended into the substance of the prostate; yet the infection must have occurred at the meatus and crept back the length of the anterior urethra and the greater part of the posterior urethra before giving signs of its presence.

Both these men were of good intelligence and apparently truthful. I see no reason to doubt the accuracy of their observations as to the complete absence of symptoms during the time the disease was confined to the urethra alone. Beside the above instances, I know of a case, occurring in the practice of another physician, which was about parallel with my second case. I have also seen several patients in whom the history, though very suggestive of a similar condition of affairs, was not entirely conclusive. I am inclined to believe that this condition, while relatively rare, is perhaps not so uncommon as we have supposed. Finger, in his book on gonorrhea, says, in substance, that occasionally gonorrhea may be wholly without symptoms until such time as the posterior urethra has become infected.

In these cases not only were there no symptoms during the time the disease was confined to the anterior urethra, but even the posterior urethritis was symptomless until complications in the shape of epididymitis and prostatitis had arisen. It would seem probable that in these cases, had the disease stopped short of the epididymis in the one instance, or the substance of the prostate in the other, the patients would have been unaware that they had been infected.

We know that *not all* ordinary attacks of gonorrhea extend to the posterior urethra, and that in a considerable percentage of those that do involve the posterior urethra the patient escapes further complications. I feel that these cases suggest very strongly the probability of men occasionally having gonorrheal urethritis without being aware of the fact. It suggests the advisability, in certain instances, of not putting too much weight on the denial of infection by a patient, even when it is plain that he is telling what he believes to be the truth; additional evidence should be sought, such, for instance, as the presence or absence of urethral shreds in his urine.

While this will be of most help in making clear the nature of lesions of the genito-urinary tract, it is by no means confined to such troubles. It may throw light on the nature of joint lesions, in which, because of the history, the possibility of gonorrheal origin had not been considered. It offers a rational explanation of the etiology of certain strictures which are *supposed* to have come about without either trauma or gonorrhea; it also may account for the great differences in the periods of incubation which have been noted in gonorrhea.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

TRUE AND FALSE KELOIDS.

BERLINER¹ believes that the keloids should still be divided into spontaneous and scar keloids; a spontaneous keloid being that which is developed in the deeper part of the skin from either unknown or undemonstrable causes, which slowly grows to a certain size, has great tendency to recurrence, a slight tendency to degeneration, ceases to grow after a certain time, and sometimes undergoes involution and disappears spontaneously. The recurrences of spontaneous keloids, if they can be spoken of as such, are no different from scar keloids. The latter arise upon scars, from excoriations, wounds, burns and loss of substance of any kind; and show by their tendency to recurrence and their rapid growth a local malignancy which suggests that of spindle-celled sarcoma, with which they have much similarity histologically. The distinction between spontaneous and scar keloids, from a histological point of view, has usually rested on the condition of the papillæ, it having been maintained that the papillary layer is preserved in the spontaneous variety.

A case is described in which a man of thirty

¹ Monatshefte f. prakt. Dermatologie, 1903, Band xxxiv.

years had begun to have keloidal growths at the age of seventeen years, the first one behind the left ear, and shortly after others upon the chest, back and arms. The growth behind the ear was excised because of the sharp pain, and a few weeks after the operation, was succeeded by another keloidal growth, which was larger than the original lesion. A second operation on the same growth was followed by a like result. Other tumors were operated on with the same result. When seen, the patient presented on the anterior and lateral surface of the chest about eighteen or twenty large and small bluish-red, hard keloids. The histological examination of the spontaneous keloids in this case showed the epidermis well preserved and the papillary layer intact. The blood vessels were somewhat dilated. The keloidal growth was limited to the corium, and sharply bounded and enclosed in a capsule of thick connective tissue. The connective tissue of the tumor consisted of bundles of fibrous tissue running parallel with the surface of the skin. A difference from fibroma was shown in the complete disappearance of elastic tissue at the periphery of the keloid. The sebaceous glands and follicles were found thickly surrounded with cells.

In sections from the scar keloids a marked difference was seen in the arrangement of the new-formed fibrous tissue; the epidermis was thinned, and the papillae either wanting or much reduced in size. The arrangement of the fibers was also an irregular one.

The writer concludes that spontaneous keloid is to be regarded as a secondary affection caused by chronic inflammatory appearances in the neighborhood of the sebaceous glands.

MYCOSIS FUNGOIDES.²

At the meeting of the French Society of Dermatology and Syphilis of June 3, 1902, Gastou showed a case of mycosis fungoides that was interesting from several points of view. It could be proved that the affection started with an "initial lesion" of circinate shape, and prominently raised. This phenomenon has been described by Hallopeau as occurring in several cases of this disease, and he has given it the name of mycotic chancre. Of further interest in this case was the existence of an intense erythema, slightly scaling, at the same time as the occurrence of rounded tumors with central depression, of which the infiltrated edges are formed by focal collections of lymphocytes, which have the histological appearance of abscesses. Pruritus was not marked, and was confined to the night. The urine was diminished in all its elements, and there was slight enlargement of the lymphatic glands. This patient had been treated for about a month with daily doses of cacodylate of sodium 5 to 10 cg.

In the resulting discussion Hallopeau claimed to have had good results as regards the itching in this affection from a one per cent ointment of sulfonal. Leredde believed that the cacodylate of sodium ought to be given in large doses, up to 30 or 40 cg., by injection. Brocq declared that we had no treatment of value in mycosis fungoides, but that we may attain a considerable amelioration in certain cases

by large doses of the arsenical preparations. These remedies should be vigorously pushed. He did not think that the spontaneous improvement and even complete disappearance of the tumors that occurs could invalidate the claims of the cacodylate. In one of his cases each interruption of the treatment was followed by an aggravation of the lesions, while when the drug was resumed there was always an improvement. Frickham had a case of this affection in which injections of the cacodylate had repeatedly brought about the disappearance of exacerbations.

PSORIASIS FOLLOWING AN EMOTIONAL SHOCK.

At the same meeting of the society Balzer and Faure-Beaulieu showed a patient of fifty-four who had developed a psoriasis in disseminated patches as the result of a fright. This patient had rather a neurotic history, having always been subject to violent headaches and nervous crises at one period of his life. He had never had psoriasis before. On May 5, 1902, while taking an afternoon walk with his children, his little girl strayed from him and was with difficulty rescued from being run over by a tram car. He was seized immediately after this with a nervous trembling, and was obliged to take to his bed, when he suffered from fever and chills. On the following morning he discovered several red spots on his left forearm. Two days later these spots had appeared on his chest, his left arm and his legs. He was taken into the hospital two weeks later, with a typical psoriasis of a rather small type. It was noticed that the flexures of the joints were affected, a most unusual sight. He had no fever nor other symptoms. He rapidly mended under a 10% chrysarobin-traumaticin treatment.

Hebra denied the influence of emotional shocks in the etiology of psoriasis, but since his time it has been recorded by many observers. Not infrequently a relapse has occurred under different nervous influences, but it is seldom that a sudden *début* of psoriasis is reported as following a violent emotion. Hardy has recorded one in a person who was nearly drowned, Leloir that of a priest who developed psoriasis after being chased by a mad dog. Brocq's case related to a mother whose child had been suffocated accidentally by its nurse in lying upon it. Other instances are those after a fall from a horse, during a charge of cavalry and after rescue from death by execution. Anger, sorrow, intellectual overwork have also been accused.

It has been mentioned that in this case the subject had a somewhat neurotic history. This has been observed in other cases where psoriasis has been noticed to occur in this manner. As the writers state, this occurrence is interesting with regard to the much-discussed question of the parasitic origin of psoriasis. It might be argued theoretically that nervous shocks diminish the resistance of the organism to a parasitic element that was up to that time innocuous.

MOLLUSCUM CONTAGIOSUM, BY C. J. WHITE AND W. H. ROBEY.³

In examining the question as to the nature of the molluscum bodies, the writers first give a short

² Annales de Derm. et de Syph., June, 1902.

³ The Journ. of Med. Research, April, 1902.

résumé of the literature, in which it is stated that Bateman was the first to describe the disease, in 1817. Virchow's view was that the new growth was a glandular epithelioma; and although he spoke of the resemblance of the molluscum bodies to the psorosperms found by Klebs in intestinal epithelium, he yet regarded them as a peculiar degeneration of the epithelium.

Kaposi was one of the first to raise the question of the contagiousness of the disease. He believed the tumor was of follicular origin; but was opposed to the view that the molluscum bodies were parasites. Hebra always believed in the sebaceous origin of the growths. Neisser has always been the champion of the coccidial nature of the molluscum bodies. He considers that the rete cells are filled with the parasites, which push aside the nuclei.

The writers' own work consisted in the microscopical examination of a number of tumors, as well as a bacteriological study, as far as the material permitted. They found that the new growth is caused by a hyperplasia of the rete cells, which push the mass down and outwards. They never saw any bodies which they could possibly consider coccidiæ; and they never saw any division of a nucleolus. They found no membrane about the cytoplasm walling off the nucleus; but there was a marked frequency of an empty perinuclear space in the Malpighian and granular cells. They regard the so-called molluscum bodies as simply keratin, identical with the horny layer, except in the shape of the individual cells. Attempts to cultivate micro-organisms in bouillon, blood serum, agar-agar, glycerine agar and gelatine 10%, were negative. Attempts were also made with a medium made from human skin. The staphylococcus epidermidis albus of Welch was frequently found.

TREATMENT OF CUTANEOUS TUBERCULOSIS⁴ BY PHOTOTHERAPY.

Leredde and Pautrier, in discussing this question, consider first the numerous failures that have followed the older methods of treatment, such as the application of various ointments, plasters and caustics, and the more radical surgical measures. They then relate three observations of cases which had been treated in various ways with no improvement whatever, and in which life had been made extremely wretched. Forty-three subjects were treated by the Finsen method, of which 8 had been wholly cured, and 7 partially. Most of these cases were of long standing and of great virulence, and had been treated previously by other methods. Certain of these patients could be benefited in certain regions, while other places were more obstinate. They discussed the new method of treatment by permanganate of potash, which has been claimed to be a very curative agent. Their conclusion is that in some cases it may be applied as an aid to a method which is really curative, but that in itself it cannot be considered a cure.

In regard to radiotherapy, they do not consider that the statistics are as yet sufficiently numerous for an opinion to be formed as to their real value. At the moment they consider it inferior to photo-

therapy, while recognizing that this may change in a few years. Their opinion is that phototherapy, in treatment of lupus of the face, occupies at the present time the highest place; and that other methods of treatment should be abandoned, if they are not successful in a short time. With regard to lupus erythematosus, the results in this case were much less favorable than those obtained in tuberculosis, as they could only record 17 cures in 33 patients. These patients also were obstinate cases that had been subjected to many other forms of treatment. Nevertheless, they regard phototherapy as infinitely superior to all other methods at the present time.

A CLINICAL STUDY OF SEVENTY-ONE CASES OF LUPUS ERYTHEMATOSUS.⁵

Sequeira and Balean offer an analysis of 71 cases observed at the London Hospital. They found that the disease began early in life in a larger proportion of cases than is generally believed. In 8 cases it began between the age of eleven and fifteen. The oldest patient in whom the disease began was fifty-eight.

They recognize two varieties of the disease—the circumscribed and the disseminated. The disseminated cases differ from the circumscribed in the appearance of numerous small foci, which form large areas by coalescence.

With regard to tuberculosis, a history of this disease was found in the family in 34 cases, rather less than one half. It was more common on the mother's side than on the father's. This enquiry related only to pulmonary tuberculosis, all other forms of the disease being disregarded. Of the 71 cases, there was evidence of tuberculosis in 18, a proportion just under 25%, as opposed to Boeck's figures of 83% and other large percentages.

The disseminated form was found to be associated with tuberculosis much more frequently than the circumscribed.

As to the place of onset: In 18 cases it began upon the cheeks over the flush area; in 15, it first involved the nose. In the disseminated cases, the face was affected first. The areas affected did not correspond with the distribution of the vessels, and the writers are inclined to explain them by the influence of the vasomotor nerves. In one case the application of a poultice to the abdomen was followed by a crop of patches of the disease; and in another the Finsen treatment seemed to increase the size of the spots and to cause the development of fresh ones at their borders.

In 27 cases examination of the urine showed the presence of albumin in 7; 5 of these were disseminated cases.

The notes of the fatal case of the disease are then given, that of a girl of eighteen, whose parents and brother and sister were alive and in good health. Her maternal grandmother had died of consumption. The disease had begun a year and a half previously, as a small, scaly patch on the left cheek, and in the course of a month it had extended over the greater part of the face. Later, patches appeared upon the hands, scalp and trunk. When admitted, she complained of headache and

⁴ Annales de Derm. et de Syph.

⁵ British Journ. of Derma., April, 1902.

abdominal pains. There was swelling of the legs and hematuria. The urine was smoky in color, specific gravity 1020, with one-tenth albumin, and blood and granular casts. She died soon after, with acute pulmonary symptoms. At the autopsy, pleurisy and infarction were found in the lungs, and an acute glomerulonephritis. No distinct signs of tuberculosis were recorded.

In conclusion, the writers state their belief that there is strong evidence in favor of lupus erythematosus of the disseminated type being of tubercular origin, or at least that the presence of tuberculosis modifies and affects the course of the disease. The albuminuria which they found in a large proportion of the disseminated cases they believe to be of toxic origin, just as the exanthemata and other diseases produce toxins which set up a nephritis. Another theory is that a previous disease of the kidneys prevents the excretion of toxins, and that their retention in the blood causes the cutaneous disease. The writers incline to the former view.

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-SEVENTH ANNUAL MEETING, HELD IN ALBANY, JAN. 27, 28 AND 29, 1903. HENRY R. HOPKINS, M.D., OF BUFFALO, PRESIDENT.

(Concluded from No. 8, page 214.)

SOME SCIENTIFIC AND PRACTICAL DETAILS REGARDING VACCINE AND VACCINATION.

DR. PETER H. BRYCE, secretary of the Provincial Board of Health of Ontario, presented this paper. Attention was called to the work of certain French investigators, which showed that vaccine lymph could be neutralized by adding to it the serum from vaccinated monkeys or from human beings recently affected with variola. The deeply rooted opposition to vaccination as compared with the comparatively new treatment of diphtheria with antitoxin he attributed to the very fact that vaccination had been made compulsory; nevertheless, he was of the opinion that vaccination should be compulsory for the following reasons, namely: (1) The theory of the immunity conferred by vaccination is founded on incontrovertible scientific evidence; (2) the infectiveness of smallpox has been shown to be uncontrollable by mere sanitary regulations unaided by the vaccination of the community; and (3) vaccination is adequate to protect completely against smallpox after exposure to that disease even up to the fourth day, and would reduce the severity of the disease to such an extent as to avert a fatal issue in almost every case in which vaccination is concurrent with the exposure. The question of the effectiveness of glycerinated vaccine lymph was no longer a matter of opinion, for out of 126,000 vaccinations made with this lymph, 98 were successful. The manufacture of vaccine lymph should be either carried on by State officers or by private concerns under direct State supervision. There was much evidence

to show that greater protection was afforded by making several scarifications at the same time.

TREATMENT OF PURULENT CONJUNCTIVITIS.

DR. EDGAR S. THOMSON of New York was the author of this paper. While not advocating the postponement of treatment until a bacteriological examination of the discharge had been made, he insisted that such examination should be made in every instance, and that it would be found a valuable guide to the treatment. In a case of gonorrheal ophthalmia an application of a 2% solution of nitrate of silver should be made at the earliest possible moment to the entire conjunctiva. For the abortive treatment a 3 or 4% solution should be tried, but in this case the action of the silver nitrate should be neutralized by salt solution. In making this application the upper cul-de-sac should not be neglected. Although a 6% solution of protargol was very much less irritating than silver nitrate, the latter should be selected for the gonorrheal cases. Besides these applications the eye should be cleansed very frequently with boric acid solution.

TRANSPORTATION AND THE OPHTHALMIC REFEREE.

DR. JUSTIN L. BARNES of New York presented this paper. By a confidential inquiry he had learned that apparently about one third of our railway companies rely upon the advice of laymen in the important matter of determining the existence of color blindness in their employees. Color blindness might be temporary or permanent, congenital or acquired, and it might affect one eye or both. If the eyes were tested together the existence of defective color perception in one eye would be overlooked, a matter of no little importance when it was remembered that an engineer so affected might at any moment have the good eye injured. Many persons who were color blind were able to pass a good examination in colors because they had learned to distinguish the colors by slight differences in illumination, but the conditions of actual practice among railroad employees were such that even this extraordinary power of discernment was no safeguard.

DR. PERCY FRIDENBERG of New York observed that the railroad men very naturally objected to being compelled to match various shades of colors, contending that this was totally different from the conditions of color perception imposed upon them when at their work. It was also a matter of record that some persons could pass a satisfactory examination with the colored wools, yet would fail with the lantern tests.

EYE STRAIN AND HEADACHE.

DR. LUCIEN HOWE of Buffalo presented a brief paper on this topic. He said that the theory that this pain was nervous or cerebral had so little foundation that it was not worth considering. A more natural explanation was that the pain was due directly to muscular contraction. While the theory of Helmholtz regarding accommodation had been quite generally accepted, a better explanation had been given by Professor Tscherning. He contended that with near vision the ciliary muscle was con-

tracted, thus drawing the edges of the lens and bending the central portion of the anterior surface further forward—in other words, making it more convex. The correctness of this view was borne out by a number of facts. Understanding, then, that this act is an active muscular effort, it was not difficult to explain the pain in the eyes constituting the first feature of ocular headache. Again, a certain amount of accommodation always meant a certain degree of convergence of the visual axes, with tension of certain of the ocular muscles and of the accessory muscles of the forehead. It was the effect upon these accessory muscles that was chiefly responsible for the headache of eye strain. The contraction in this way of the anterior and posterior portions of the occipito-frontalis muscle explained both the frontal and occipital headache. The author's conclusions were as follows: (1) The pain and headaches which are experienced in the so-called eye strain can be accounted for most rationally as due to excessive muscular contraction; (2) the pain in the eye itself is to be explained by our recently acquired knowledge of the process of accommodation and the tension on the internal recti during convergence; (3) the pain over the eye in the forehead is caused by contraction of the fibers of the corrugator supercilii, by the anterior portion of the occipito-frontalis and by other fibers extending over the forehead which are accessory muscles of accommodation, and (4) the pain at the back of the head is the result of contraction of the fibers of the posterior portion of the occipito-frontalis and the upper fibers of the trapezius when acting indirectly as accessory muscles of accommodation.

HYDROPS TUBÆ.

DR. HENRY D. INGRAHAM of Buffalo reported two cases of this kind, the cause in one being a complicated child-birth and in the other, long-standing constipation.

STERILIZED MILK, PASTEURIZED MILK OR CLEAN MILK.

DR. C. W. M. BROWN of Elmira read a paper with this title. He argued in favor of Pasteurization, though admitting that this method required more care and intelligence than sterilization, and was not desirable when ice was not obtainable.

THE EXAMINATION OF MILK BY THE GENERAL PRACTITIONER.

DR. HENRY L. K. SHAW of Albany presented a paper on this subject, but for lack of time gave only a brief outline of it. He said that milk having an acidity of over 0.2 of 1% was not fit for use. The acidity should be determined either by titration or by Farrington's alkaline test tablets. For taking the specific gravity of milk, particularly of small samples of breast milk, he used a small Quevenne lactometer containing a thermometer, thus making it easy to correct the readings according to the temperature of the milk. The specific gravity of average breast milk was 1.030 and that of cow's milk 1.029 at 60° F. In estimating the percentage of fat he preferred the Babcock method, and to that end made use of a convenient centrifuge manufactured by D. H. Burrall & Co. of Little Falls, N. Y.

The advantage of this apparatus was that it used the regulation size test-bottles, and yet could be used for urinary and bacteriological work. Having determined the specific gravity and the percentage of fat, the total solids could be determined by dividing the specific gravity by 4 and adding to this one fifth of the percentage of fat, and finally adding the percentage of fat. In connection with such milk analyses it was exceedingly convenient to make use of a clever device known as Richmond's sliding milk scale, which made it unnecessary to have recourse to mathematical formulæ. The proteids could be determined approximately by subtracting the percentages of fat, sugar and salts from the total solids.

BLOOD EXAMINATION IN GENERAL PRACTICE.

DR. IRVING P. LYON of Buffalo reported a number of cases to show how such examinations might prove useful.

THE EOSINOPHILES; THEIR ETIOLOGY AND VALUE IN DIAGNOSIS AND PROGNOSIS.

DR. THOMAS R. BROWN of Baltimore was the author of this paper, but as he was unavoidably absent, it was read for him. He said that the increase of the eosinophiles was sometimes of assistance in a number of infectious diseases, for example, scarlatina, chicken pox, smallpox, typhoid fever and tuberculosis. In trichinosis it was a most valuable diagnostic sign, and it was sometimes of service in differentiating certain forms of leukemia.

DEGENERATION OF THE ERYTHROCYTE.

DR. J. C. DACOSTA, JR., of Philadelphia was the author of this paper. He said that the presence of nucleated erythrocytes of the megaloblastic type indicated a very severe form of anemia. Granular punctate basic degeneration was found in cases of lead poisoning quite early, and was also present in other toxemias.

THE IODINE REACTION AND ITS DIAGNOSTIC SIGNIFICANCE.

DR. EDWIN ALLEN LOCKE of Boston, Mass., read this paper, illustrating it freely with photomicrographs. The technique as given by him is as follows: A thin film of blood is spread on a cover-glass and dried in the air. It is then mounted on a slide with a drop of the iodine solution, and may be examined at any convenient time. An oil immersion lens and strong daylight should be used for this examination. The reaction consisted in the presence of brownish granules in the protoplasm, a diffuse brown tinting of the cells or the presence of diffuse brown extracellular masses. The reaction appeared to be dependent upon a change in the cells brought about by certain toxemias.

SECOND DAY. — WEDNESDAY, JAN. 28.

THE SURGEON'S ENEMY — THE SKIN.

DR. ROBERT H. M. DAWBARN of New York read this paper. His first point was that certain regions of the body were best deprived of hair by chemical shaving, a process which could be conducted very

satisfactorily by the use of a 25% aqueous solution of Merck's hydrosulphate of sodium. It should be left on for ten minutes.

In connection with the use of rubber gloves, mention was made of the expense attendant upon the constant renewal of such gloves demanded by tears and punctures. He had found that they could be mended if one would take a little trouble and would procure a few test tubes, two flatirons and a cautery set such as is used for burnt-leather decoration. To renew the end of a glove-finger, the latter should be trimmed smoothly, the tip of a finger from a worn-out glove cut off, and the one fitted nicely over the other with the aid of a test tube, held bottom up to serve as a form. The edges of the rubber should be softened with the cautery, the patch applied and held in place by twine. In putting on flat patches, one flatiron was used as a surface on which to work and the other iron was used as a weight, here taking the place of the twine. Gloves so mended could be sterilized by boiling.

A third point made was with regard to the exclusion of perspiration from the operative field. He had accomplished this by the use of a powder composed of lycopodium, talc, or stearate of zinc containing 20% of alum, and sterilized. This powder was dusted freely over the operative field one hour before the operation and was left on until the usual cleansing applications were made. The area of skin so treated would not perspire in the time necessary to do an operation.

THE TECHNIQUE OF PROSTATECTOMY.

DR. RAMON GUTERAS of New York presented this paper. For this operation he makes use of an instrument specially devised by himself for holding and controlling the prostate. It is like a sharply double-curved urethral sound. Having opened the membranous urethra, the forefinger should be introduced and the prostate separated from the capsule. The prostate usually comes away with the so-called middle lobe attached to one of the lateral lobes. Artery forceps should be secured on each side of the wound until after the drainage tube has been introduced.

PERIDUODENAL ABSCESS SECONDARY TO PERFORATIVE ULCER OF THE DUODENUM.

DR. WILLIAM S. BAINBRIDGE of New York presented this paper in abstract. He had been able to find 26 cases on record, in 22 of which the diagnosis had not been made until operation or after death. The author reported one case with autopsy. The onset of this affection was rapid, and usually there was a previous history of gastrointestinal disturbance. Very often there was no blood discharged per rectum.

SOME POINTS REGARDING THE TREATMENT OF THE FUNCTIONAL DISORDERS OF THE SEXUAL ORGANS IN THE MALE.

DR. FREDERIC R. STURGIS of New York read this paper, speaking more particularly of loss of sexual power in the male. He denied that masturbation was a very frequent cause, and expressed the opinion that "withdrawal" at the time of coition was

a much more potent factor. In about 50% the cause was to be found in an uncured urethral stricture from gonorrhea. In many cases the cause was the presence of granulations in the urethra. The secret of successful treatment was the employment of sedatives, and local remedies were more useful than internal medication. Of the local applications nothing was better than nitrate of silver in proper strength. Very little could be done for the relief of sterility in the male, because in 90% of the cases the cause was the absence from the semen of the spermatozoa. Electricity was not of much value, and of the various currents the Faradic was the worst. These patients should avoid stimulants, sometimes even going so far as to refrain from coffee.

DR. R. H. M. DAWBARN of New York said that the simple operation of tying off some of the veins at the base of the penis did good by increasing the vigor of the erection.

DR. A. JACOBI of New York thought circumcision was often beneficial, chiefly, however, through the profound mental impression it produced.

PRESIDENT'S ADDRESS: PROGRESS, UNITY, LIBERTY.

DR. HENRY R. HOPKINS of Buffalo delivered the annual address, taking the above for his theme. The opinion was expressed that satisfactory progress could only be made by having in the Cabinet at Washington a Secretary of Health. Unity was not favored by discussing and criticizing the modes of practice of our professional brethren. There was unfortunately still in this State an anomaly in the form of an examining board for each of the three "schools" of medicine, and it should be our aim to do away with this.

PLASMIDIOPHORA BRASSICÆ.

DR. HARVEY R. GAYLORD of Buffalo gave in this paper a general description of this organism and what had been so far learned of its bearing upon medicine.

PRIMARY CARCINOMA OF THE VERMIFORM APPENDIX.

DR. ARTHUR W. ELTING of Albany read this paper, reporting three recent cases that he had studied personally. He had found 40 cases reported in the literature. The disease showed a tendency to occur rather early in life, but no great disposition to spread. The chief symptom was pain in the region of the appendix, so it was not surprising that a number of cases had only been accidentally discovered at autopsy.

EARLY RECOGNITION AND SYMPTOMS OF ARTERIO-SCLEROSIS.

DR. DELANCEY ROCHESTER of Buffalo presented this as the opening to the symposium on arteriosclerosis. He classified the cases into: (1) Those due to the strain of occupation; (2) those resulting from poisons introduced into the system from without, — for example, syphilis, lead and alcohol, — and (3) those resulting from a toxemia developed as a consequence of faulty metabolism. Hypertrophy of the heart was apt to be an early development.

ARTERIOSCLEROSIS AND THE HEART.

DR. GLENTWORTH R. BUTLER of Brooklyn presented this paper. The cases coming under this head were arranged into two groups, depending upon whether or not the coronary arteries were involved. In senile arteriosclerosis the heart was often not enlarged nor the arterial tension augmented. Marked cardiac hypertrophy due to arteriosclerosis was most apt to occur in middle life, though it was by no means unknown in quite young persons. When the hypertrophy gave place to dilatation the resulting symptoms were practically those found in ordinary heart disease. In advanced cases the skin was pale and wet, the pulse weak as compared with the apex beat, and there were apt to be attacks simulating angina pectoris. True angina was rarely met with except when the coronary participated in the sclerosis. Cases having attacks of severe gastralgia and exhibiting degeneration of the arteries and myocardium should be regarded with suspicion.

ARTERIOSCLEROSIS AND THE KIDNEY.

DR. IRVING P. LYON of Buffalo discussed this subject. He enumerated as the prominent factors in these cases, syphilis, alcoholism, lead poisoning, gout and prolonged physical strain.

ARTERIOSCLEROSIS AND THE DIGESTIVE SYSTEM.

DR. CHARLES G. STOCKTON of Buffalo said that arteriosclerosis was indirectly a common cause of digestive disturbance, and the opinion was gaining ground that it was more often a direct cause than had hitherto been believed. Among the direct effects were severe attacks of pain usually diagnosed as gastralgia.

ARTERIOSCLEROSIS AND THE NERVOUS SYSTEM.

DR. WILLIAM BROWNING of Brooklyn passed in rapid review the many conditions in which arteriosclerosis was found to be responsible to a greater or less extent for disease of the nervous system.

ARTERIOSCLEROSIS AND MENTAL DISEASE.

DR. ADOLF MEYER of New York said that while arteriosclerosis of the heart and aorta was very frequently met with in the insane, it was rare that mental disorder could be ascribed to such changes. Arteriosclerosis of the brain was usually associated with loss of memory of the immediate past, and often with temporary delirium or with mental confusion. There was really no good ground for speaking of arteriosclerotic insanity, and hence there was no special treatment for cases of insanity in which arteriosclerosis was one element. The condition was chiefly of interest from its bearing on prognosis.

PULSUS INFREQUENS.

DR. THOMAS E. SATTERTHWAITHE of New York was the author of this paper. He said that the prevailing terminology was unfortunate. Thus, the ending "cardia" implied that the key to the action of the arterial current was in the heart rather than in the peripheral arteries, whereas the reverse was the case. The prefix "brady," as in bradycardia, was also erroneous, because in some cases of infrequent pulse

it was not slow — in fact, might be quick. The infrequent pulse might occur at almost any period of life, but, in his experience, it was more apt to occur in middle life or later. By common acceptance a pulse below 60 was held to be infrequent. It was quite rare for the pulse to go below 40. There were two principal varieties, the physiological and the pathological. The infrequent pulse was more common in males than in females in the proportion of five to one. The pathological variety was subdivided into the temporary and the chronic forms, the latter being very uncommon. The pathological forms were usually dependent upon infections, digestive disturbances or disease of the cerebrum. The relation of these cases to mitral stenosis was discussed, as well as their association with arteriosclerosis, diabetes and chronic nephritis. In the treatment, large doses of digitalis should be avoided, and milder cardiac remedies, reinforced by hydrotherapy, massage, electricity and exercises, should be relied on.

DR. E. LIBMAN of New York, in discussing the general subject of arteriosclerosis, said that it was important to examine the arteries of both the upper and lower extremities, and not be content with observing the condition of the radials. In persons having arteriosclerosis pulmonary edema was apt to develop without obvious cause.

DR. A. L. BENEDICT of Buffalo observed that too much attention had been given to alcohol as an etiological factor in hepatic sclerosis, to the neglect of a proper appreciation of the part played by arteriosclerosis.

DR. EDWARD D. FISHER of New York thought that when apoplexy occurred in young persons it was apt to be the result of a disease affecting chiefly the muscular coats of the arteries.

DR. J. J. WALSH of New York reported a remarkable case of infrequent pulse that he had observed. The pulse rate was never over 30, and yet this young woman was able to continue her occupation of theatrical dancing without any discomfort arising from this peculiar condition of the circulation. Strangely enough, although she had suffered from the usual diseases of childhood, no physician ever commented on any peculiarity of her pulse until she had an attack of influenza a few years ago, from which it was inferred that the condition had been acquired.

SOME POINTS PERTAINING TO THE THERAPEUTIC MANAGEMENT OF THE UREMIC STATE.

DR. HEINRICH STERN of New York was the author of this paper. He said that uremia was not always dependent upon the same cause, and the serum of each variety possessed certain peculiar features. The tendency to convulsions in parenchymatous, and to coma in interstitial, nephritis was probably explained by the varying constitution and physio-electric condition of the respective blood sera. Uremia was neither so common nor so severe in chronic parenchymatous nephritis. As to the treatment, the speaker said that sweating was indicated in every case of acute uremia, but its effect was most salutary in chronic parenchymatous nephritis. Enteroclysis or hypodermoclysis could be employed in conjunction with diaphoresis.

Venesection produced the most lasting results in acute nephritis. In children from 100 to 250 cc. of blood should be abstracted, while in adults the quantity might vary from 300 to 500 cc. The withdrawal of blood did not alter the molecular concentration of the remaining blood, nor did it increase oxidation. The improvement observed after venesection in these cases seemed rather to be due to the relief of vasoconstriction in the kidneys or central nervous system, or in both. The effect of either hypodermoclysis or of saline infusion was apt to be transitory, but might prove useful in a crisis. Isotonic solutions of chloride of sodium were not so good in uremia as hypotonic solutions. Morphine was not indicated in the uremia of chronic interstitial nephritis, and might even do harm.

HEPATIC BALLOTTEMENT OR BIMANUAL PALPATION.

DR. A. L. BENEDICT of Buffalo described under this term a method of bimanual palpation of the liver which he found useful. Pressure should be made downward, forward and to the left, and the movement of the organ under the hands was more easily detected, and the organ itself mapped out, than where no such motion occurred.

THIRD DAY. — THURSDAY, JAN. 29.

CANCER OF THE CERVIX UTERI TREATED BY THE X-RAY.

DR. THOMAS S. SCULLY of Rome presented a paper on this subject, in which he described his experience with this new treatment in three cases. He had been particularly impressed with the great relief afforded by the treatment to persons who had previously suffered pain almost constantly.

AN OPERATION FOR CICATRICIAL CONTRACTURES OF THE UPPER EXTREMITIES.

DR. A. H. TRAVER of Albany reported this case. A good result in a very bad case followed division of cicatrices and four-flap operations after the sling method.

OFFICERS ELECTED.

Dr. A. T. Bristow of Brooklyn, president; Dr. Edward B. Angell of Buffalo, vice-president; Dr. F. C. Curtis of Albany, secretary; Dr. O. D. Ball of Albany, treasurer.

Recent Literature.

The Development of the Human Body. A Manual of Human Embryology. By J. PLAYFAIR MCMURRICH, A.M., Ph.D. With 270 illustrations. 12mo. Pp. xvi, 527. Philadelphia: P. Blakiston's Son & Co. 1902.

There has long been needed a succinct and adequate manual of embryology, and this need is well met by the present volume, which is an excellent text-book. The author treats his subject so as to especially emphasize the value of embryology as a means of explaining, and thereby render intelligently comprehensible, the anatomical structure of the adult, and has increased the value of his text to medical men by interpolating the embryological

explanations of many important anomalies of structure. His style is simple, direct and concise, and reveals a talent for clear statement which does much to enhance the value of the book. The selection of the illustrations has been judicious. Except for a number of diagrams, few of the figures are original, but are, for the most part, new copies from recent authorities, so that they have a certain freshness. The type is large and the printing good, though the ink used is too heavy to give the best effect with the illustrations. A sufficient index closes the volume.

The work makes no claim to originality, and is based on the larger standard treatises, but it is to be recommended as the best, probably, of the shorter manuals of embryology now on the market.

Studies from Institute for Medical Research, Federated Malay States. No. 1, Volume 1. The Malarial Fevers of British Malaya. By HAMILTON WRIGHT, M.D. (McGill). Philadelphia: P. Blakiston's Son & Co.; L. & A. Churchill, London. 1902.

We are in receipt of the first number of the first volume of "Studies from the Institute for Medical Research from the Federated Malay States" on the subject of malarial fevers. The pamphlet is edited by Dr. Hamilton Wright, who is director of the institute, and concerns itself particularly with malaria of the Malay Peninsula. The volume contains a vast number of facts and observations, which are unquestionably of very considerable value to students of malaria. In addition to the text there is a large number of charts illustrative of phases of the disease and matters of interest relating to it, with an excellent map of the Malay Peninsula. We should judge from the title page that this is the first of a series of similar publications on the same or allied subjects.

Cushny's Pharmacology and Therapeutics. A Text-book of Pharmacology and Therapeutics; or the Action of Drugs in Health and Disease. By ARTHUR R. CUSHNY, A.M., M.D., Professor of Materia Medica and Therapeutics, University of Michigan, Department of Medicine and Surgery, Ann Arbor, Mich. Third edition, revised and enlarged. In one handsome octavo volume of 750 pages, with 52 engravings. Philadelphia and New York: Lea Brothers & Co., Publishers. 1903.

Our readers are so familiar with this work that it is only necessary to call to their attention the appearance of a new edition. The book is so reliable and so full of modern thought that it has come to be accepted as the standard work on pharmacology and therapeutics in this country. The present edition differs little from its predecessors except in additional space devoted to the nutritive value of alcohol, the subarachnoid use of cocaine and the discussion of the various uses of the adrenal gland. It is a gratification that what the author in his preface denotes "minor changes" in reality include so much. We hope that succeeding editions will not grow in the number of pages. E. P. J.

The International Text-Book of Surgery. By American and British Authors. Edited by J. COLLINS WARREN, M.D., LL.D., Hon. F. R. C. S. Eng., Professor of Surgery, Harvard Medical School;

and A. PEARCE GOULD, M.S., F. R. C. S. of London, England, Surgeon to Middlesex Hospital, etc. Second edition, thoroughly revised and enlarged. Philadelphia and London: W. B. Saunders and Co. 1902.

This work, which was first presented to the medical profession in 1900, has become so well known as to scarcely require farther description of its character. Little has been said of it except in commendation.

The new edition appears also in two volumes, of which Volume I is devoted to general and operative surgery, while Volume II treats of special and regional.

Volume I is a royal octavo, containing 965 pages (slightly larger than Volume I of the first edition), with 461 illustrations and 9 full-page colored lithographic plates.

Volume II, also royal octavo, contains 1122 pages (increased from 1072), with 419 illustrations and 8 full-page colored lithographic plates.

The present edition has been carefully revised, not only by the individual authors, but also by the editors themselves in the effort to have the work fully represent the surgery of today. Especially have the chapters on military and naval surgery been revised and rewritten. The section on diseases of the lymphatic system, formerly by Dr. J. B. Hamilton, has been completely rewritten by Drs. J. Collins Warren and R. B. Greenough. The chapter on surgery of the kidney has also been extensively revised. The increased number of illustrations also attracts attention.

The general character of the book, as is so well known, is that of an excellent textbook of surgery, presenting in a concise manner our present knowledge of surgical pathology, symptomatology, diagnosis and treatment. One can find little to criticize in the new edition. The authors of the various parts of the work are all men of wide experience, and often notably expert in their especial field of work. Their tasks have been well performed. The general characteristics of the first edition as regards classification of subjects, paragraphing, indexing, type, illustrations and presswork reappear in the present one and are equally satisfactory.

It is a book containing all that can practically be condensed in a work having so broad a field, and the data are presented in a form easily accessible. The essential facts are usually found. The second edition certainly sustains the high standard of excellence set by its authors when the first edition was published; and the reader can be sure that when he has thoroughly studied these volumes and familiarized himself with their contents, his knowledge of modern surgery will be up to date.

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University, New York. Volume VII, for the Collegiate Year 1901-1902. Reprints.

Volume VII of *Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University*, has appeared. It is a pamphlet of reprints of papers published in various journals throughout the collegiate year of 1901-1902. Many of the papers are valuable, and the whole publication shows a high degree of departmental activity.

THE BOSTON

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THE TEACHING OF PHYSIOLOGY.

FEW branches of medicine have escaped the improvements in methods of teaching which the past few years have brought forth. In this general movement physiology has taken a conspicuous part. The very great and growing importance to the medical student of a fundamental knowledge of the normal functions and processes of the human body has impressed itself the more of late, owing to the development of other lines of scientific medicine. The practitioner or investigator in any field requires not only a knowledge of physiological facts, but also of physiological method, if he is to attack intelligently the problems which are everywhere presenting themselves for solution. The experimental method, which for a long while was the prerogative of the physiologist, has long since become the property of the pathologist, and has begun to invade many branches of practical medicine. This means that the former teaching of physiology to students beginning their course, by lectures and occasional demonstrations, must give place to a more first-hand acquaintance with the questions at issue, by personal experience in the means of experimentation and the lessons it teaches.

No doubt physiology has long been one of the best taught of the medical sciences; the didactic lecture filled its place and certainly has not yet outgrown its usefulness, and students finishing the course as given ten or fifteen years ago had a knowledge of physiological processes which served as a basis for much which was to follow. To have given the average student more would have been placing undue stress upon a branch of knowledge which then as now must be fitted into the general scheme of instruction as one part of a component whole. The situation is now quite different. If for no other reason, physiology must keep pace with other

branches of research by cultivating in its students a knowledge of method and of immediate acquaintance with fact. The lecture must, therefore, be subordinated to the demonstration, and the demonstration must be subordinated to the actual work of personal experimentation if modern physiological teaching is to fulfil its completest mission.

As a matter of fact, few subjects have been more revolutionized than this of the teaching of physiology within the last few years, due to a variety of circumstances, to some of which we have alluded, and to the energy and deep-seated convictions of certain of its prominent teachers. We may get an admirable idea of the new method as actually practised by reading a pamphlet published by Dr. William T. Porter of the Physiological Department of the Harvard Medical School, entitled "Physiology at Harvard," which has recently appeared in its second edition.

As a preface, Dr. Porter writes: "This book is written to explain a new method of teaching, sound in theory and feasible in practice; to provide the Harvard Medical School with a precise account of the work done by each student in Physiology, and to create for students and instructors alike a working-plan by which they may find their way unvexed through much detail." The pamphlet is a clear exposition of the advantages of the new method, by which the student is brought into immediate relation with experimental evidence. This matter has been ably presented before by the author in a preliminary publication in this JOURNAL and by others subsequently.

A natural drawback to the successful prosecution of a large number of experiments by classes of one to two hundred students has hitherto been the cost of the necessary apparatus. To overcome this difficulty the attempt has been made with success at the Harvard Medical School to manufacture large quantities of simple, adequate and inexpensive apparatus for the use of its own students, which may also be procured by other institutions. Inasmuch as the course as now given requires the issue of at least twenty-five thousand articles, it is forthwith apparent that inexpensiveness of production without loss of accuracy is absolutely demanded. This demand has been met, so that the teaching of physiology from the standpoint of personal experimentation has become possible and is now in active practice. This marks a step in advance which it is hard for those engaged in other lines of work fully to appreciate. It is, as Dr. Porter suggests, not so much a development of former methods as a completely new method, demanding a wholly different mental attitude on the part of the student. The new plan is unquestionably in accord with the best tendencies

of the time. To perfect the details will require many years' experience, but there need be no misgivings provided one is sure of the soundness of the principle, and of this there can be no doubt unless the whole fabric of our modern conception of education is wrong.

THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

SOMETHING of the plan and scope of the great laboratory of the Rockefeller Institute has just been made public by Dr. L. Emmett Holt, secretary of the institute, and his statements show that there is contemplated the erection and equipment of probably the most extensive and complete medical laboratory in the world. Immediately available for preliminary expenses Mr. Rockefeller has given \$1,200,000, but the total expenditure, it is said, is likely to exceed this sum tenfold. The site previously mentioned in the JOURNAL has now been practically secured, and suitable buildings, so arranged as to permit of such extension as the growth of the work in hand may necessitate, are to be at once put up. Dr. Simon Flexner, at present professor of pathology in the University of Pennsylvania, who has won such enviable distinction by his original researches, is to be the chief director of the laboratory, and associated with him will be directors of the various departments of physiological chemistry, preventive medicine, pathology, bacteriology, pharmacology, therapeutics, etc., under whom there will be a corps of paid fellows or scholars. There will thus be a large body of specially trained persons, whose entire time will be devoted to research work. In order to ally the research work with practical results, it is the purpose to erect in the near future a completely equipped hospital in which suitable cases may be treated by special methods. Furthermore, the project will ultimately include not only facilities for an increased knowledge of the causes and cure of disease, but for the health education of the public, by making the laboratory a center for the diffusion of popular information in regard to matters of hygiene and the prevention of disease.

In speaking of the work of the institute, Dr. Holt said its great aim was to promote medical research with special reference to the prevention and treatment of disease. It was thought wise by the board of directors not to concentrate the work of the first year, just completed, in any single place, but to enlist the co-operation of various investigators in different parts of the country. Accordingly twenty fellowships were established, these being placed in the universities of Harvard, Yale,

Columbia, New York, Johns Hopkins, Pennsylvania, Michigan, McGill, Wesleyan, California and Western Reserve. In addition, three physicians were sent abroad, two to work in Ehrlich's laboratory at Frankfort-on-the-Main, and one to work in Koch's laboratory in Berlin. Among the subjects of investigation have been tuberculosis, typhoid fever, dysentery, tetanus, diabetes, smallpox, vaccination and problems connected with the dissemination of infections by mosquitoes. Under the supervision of Dr. William H. Park of the New York Health Department, eight physicians have been engaged upon a study of the milk supply of New York City, including the inspection of dairies, the bacteriological examination of milk and observations upon children in institutions and tenement houses. At the end of the first year it was evident that, while much could be accomplished by individual workers carrying on their investigations in separate laboratories widely scattered, the highest results of research could not really be obtained in that manner. Existing institutions did not seem to afford adequate facilities for many phases of investigation which the directors deemed of the greatest importance. They were unanimous, therefore, in the conviction that the best work could not be done in this way, and that the high purpose of the founder could not be realized by such agencies. It was believed that only by concentrating the most important lines of work in a fixed place, with special equipment, under a competent head or series of heads, could the best results be obtained in the different subjects of investigation.

The directors consider it very gratifying to find how large a number of trained men and women there are in America who are anxious to devote themselves to research work. What has been lacking in the past has been the opportunity, hitherto not afforded in any existing institutions. It was with these facts in mind that Mr. Rockefeller gave assurances that he would bear the expense of erecting in New York such buildings as might be deemed necessary for concentrating the work and raising it to the highest point of efficiency, with a view to practical results.

PRACTICE VERSUS THE LABORATORY.

EVERY one will admit, as we have recently suggested in these columns, that simple and practically possible clinical tests are altogether desirable for the medical practitioner if he is to keep pace with the progress in diagnosis. No doubt he can perform many of these now necessary tests with sufficient accuracy to form definite judgments as to their significance. At the same time it must forth-

with be admitted that those who are doing Widal reactions and making blood counts daily in great numbers of cases are far better able to estimate the significance of such examinations with their bearings on prognosis than the practitioner whose work is exacting and whose time is already full. The difficulty is evidently a real one; the conscientious practitioner feels himself bound to make use of the most modern methods, and at the same time, from force of circumstances, is often incapable of so doing. The inevitable result must be that tests are used, often uncritically, and with small benefit to the patient, not because the physician is careless or unmindful of his highest duty, but simply because the day is too short for a large medical practice and the work of the laboratory. Under such conditions the laboratory methods are certainly doomed to neglect.

Dr. Addison S. Thayer, himself a practitioner of wide general and special experience, read at the last annual meeting of the Maine Medical Association a paper on the query: "To what extent can general practitioners make use of the newer diagnostic methods?" A physician in middle life is pictured who is considering what should be the medical equipment of his son about starting in practice. He sees and realizes the importance of modern methods, and expects that in some way his son may be able to master them all, and put them into useful practice. Of this Dr. Thayer says:

"It is becoming plain that this ambitious parent has suffered a loss of perspective. In the rapid development of medicine during recent years, he has crowded into his boy's future program one number after another, until he expects a performance of which no finite being is capable; and he has developed in himself a species of mild megalomania. Although he claims to expect from the young man no more than a rudimentary grade of skill, this claim is palpable self-deception. He really expects the equal of his own keen stethoscopic ear to be straightway reproduced in his son, and, in addition, a fluoroscopic eye and various other twentieth-century accomplishments. He looks for a composite of the technical skill of the specialties of modern medicine to have the clearness of definition which is characteristic of each specialty.

"He himself has never made investment in the paraphernalia required for radioscopy nor for practical bacteriology. For these aids in diagnosis he has relied upon experts. And here, if he did but know it, is the key to the puzzle. Believing as he does, with all his soul, that the function of the family doctor will never be lost, he should recognize also that this is distinctively the era of the expert; that the specialist should be a helper, not a rival, and that the helpfulness of specialists is notably promoted when family physicians know enough themselves to protect their patrons from fads and to tell them when and where to seek the benefit of special skill.

"The general practitioner of the future should be more

than a guide-post, more than a gatherer of urine, sputum and tonsillar mucus. He should be, in the widest sense, a medical adviser."

With this in general we heartily agree, but there are those who venture to doubt as to this looked-for apotheosis of the general practitioner, and who suspect that it may be a fallacy to suppose that the family physician of the future can in the "widest sense be a medical adviser," when he is confessed to be imperfectly informed on the very matters for which his medical advice is to be sought.

THE PASSING OF FORMALIN INJECTIONS.

DR. WILLIAM H. PARK, of the division of Bacteriology of the New York Health Department, has made a series of careful experiments on rabbits, which goes to show that in cases of septicemia, the intravenous injection of formalin is not only useless, but attended with considerable danger, on account of the deleterious action of this agent on the blood. The animals were inoculated with streptococcus material, and while the formalin did have some direct coagulating effect on the bacteria, it is also said to have caused more or less disintegration of the red blood corpuscles. The practical outcome of the experiments was that, instead of increasing the resistance of the system to the operation of the bacteria, formalin actually lessened it, as was shown by the fact that the infected rabbits into which the solution was not injected lived longer than those subjected to the formalin test. On the same day that Dr. Park made known the results of his researches there died in Bellevue Hospital a patient with puerperal septicemia, in whose case the formalin treatment had been employed. The condition of the woman when admitted was so aggravated that the attending physician was convinced that the injection of normal salt solution, which is ordinarily used in these cases, would prove unavailing. Therefore, although from its first exploitation he had been entirely skeptical as to its alleged good results, he advised that the injection of formalin should be tried.

SMALLPOX IN MASSACHUSETTS.

It has been said that when smallpox appears in epidemic form during one winter it is sure to reappear in the next. This statement has received confirmation in the experience through which Boston, Massachusetts, and other States and cities have passed during the last two winters. In this community the disease has, on the whole, been less widespread this winter, and now, although the cold weather is not yet past, it has practically disappeared.

The history of the epidemic is briefly as follows: It was imported apparently from the Southern States in 1898, and began to be epidemic in Massachusetts in October, 1901. The number of cases and deaths in 1902 was upward of two thousand, and thus far this year somewhat less than one hundred and eighty-three have been reported. As is usual, the preparations to meet the disease were insufficient in many places, particularly in the smaller towns. It is worthy of comment that almost without exception these smaller communities recognized the danger, and forthwith provided buildings for the use of smallpox patients. It is to be hoped that even after the disease has wholly disappeared these same communities will still see the desirability of maintaining hospitals which may be quickly used for the same purpose should occasion require. It is, in fact, stated that some of these towns are planning to erect more adequate structures than at present exist, in order to meet possible future contingencies.

Now that the disease is decreasing to a very evident degree, it is desirable to consider some of the reasons for this decrease, and also to utter a warning regarding over-confidence in the future. Undoubtedly isolation and vaccination have been the two agencies which have led to the practical cessation of the epidemic. Under very great discouragements and much active opposition, the various boards of health in this State have insisted upon general vaccination. It is also true that never before has so large a percentage of unvaccinated cases appeared in our hospitals as during this winter, and the mortality in Boston has probably been larger than in any other part of the country. It must be remembered, too, that patients are still coming to the hospitals and that the work of vaccination must go on with undiminished zeal if we are to prevent the constant reappearance of the disease. The ideal will not be reached until the population may be regarded as wholly vaccinated, a condition which apparently exists in Germany, where the disease has been reduced to a minimum. Considering the difficulties under which the work of prophylaxis has been carried on, the city and State are certainly to be congratulated that in the middle of a winter of rather unusual severity the disease is rapidly disappearing.

MEDICAL NOTES.

THE PLAGUE EPIDEMIC IN INDIA. — According to the *Lancet*, the mortality from plague throughout India is advancing by leaps and bounds. This week the total has risen to 19,224. The details published are: Bombay Presidency, 8,962 deaths;

the Punjab, 2,442; the United Provinces, 2,291; Bengal, 2,124; the Central Provinces, 605; the Madras Presidency, 688; the Mysore State, 806; Bombay City, 448; and Calcutta, 37. In Poona the disease is raging very virulently; nearly 100 deaths are occurring daily, the normal death-rate of the city being 12. In Calcutta a fresh outbreak has started and the figures are running up rapidly. This year the general development of plague is more widespread and involves a larger population than at any previous period. The Government has been compelled to abandon the system of inspection for plague on the railways in the United Provinces as hopeless. This inspection is credited with having postponed the invasion of certain areas, but when the disease has once attacked a province precautions on the railways are of no further avail.

TUBERCULOSIS IN GERMANY.—The Imperial Health Office in Berlin is reported to have made the following statements with regard to tuberculosis in Germany: Out of 1,000 deaths of persons between the ages of fifteen and sixty, 816 die of tuberculosis alone. Persons under fifteen and over sixty are seldom affected. The mortality of the whole population averaged 242 per 100,000 yearly, rising in the Bavarian Palatinate to 329, in Bremen to 337 and in Hesse to 314. The conditions in Germany are shown to be better than in France, Austria and Russia, but worse than in Switzerland, Belgium, Denmark, Norway and especially England. The chancellor said the Health Office found that consumption can best be treated in special hospitals, in which Germany now has accommodation for 30,000 patients. The statistics of 1896 to 1901 showed that, on the average, out of 100 cases treated 87.7 were dismissed as cured or improved, 8.8 as no better, 3.1 as worse, and that 0.4 died.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Feb. 25, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 28, scarlatina 34, typhoid fever 11, measles 24, smallpox 4.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported for the week ending February 21 was 197, as against 250 the corresponding week last year, showing a decrease of 53 deaths, and making the death-rate for the week 17.52. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 29 cases, 6 deaths; scarlatina, 26 cases, 2 deaths; typhoid fever, 9 cases, no deaths; measles, 22 cases, no deaths; tuberculosis, 29 cases, 21 deaths; small-

pox, 10 cases, no deaths. The deaths from pneumonia were 38, whooping cough 5, heart disease 15, bronchitis 12, marasmus 4. There were 9 deaths from violent causes. The number of children who died under one year was 40; under 5 years, 57; persons over 60 years, 49; deaths in public institutions, 68.

NEW YORK.

WOOD ALCOHOL IN JAMAICA GINGER.—According to a report recently made by Dr. J. A. Deghoree, chemist to the Health Department, wood alcohol, instead of ethyl alcohol, was found to have been used in the preparation of Jamaica ginger and spirit of ammonia in 40 out of 215 samples purchased of New York druggists. As a result of this, one arrest has already been made, and proceedings are to be instituted against a considerable number of other pharmacists.

REPORT OF THE GERMAN HOSPITAL AND DISPENSARY.—The annual report for 1902 of the superintendent of the German Hospital and Dispensary was presented at a meeting of the board of trustees held Feb. 20, showing that during the year the daily average of patients in the hospital was 176; treated in dispensary, 181; total, 357. A gift of \$25,000 was made by one of the trustees, and bequests amounting to \$10,088 were received, while various organizations contributed nearly \$10,000 more to the institution.

TYPHOID AT ITHACA, N. Y.—The cases of typhoid fever at Ithaca still continued to increase until recently. On a single day, Feb. 17, no less than three Cornell students died from the disease. Shortly before that an official count showed that there were 449 cases in the town. On Feb. 19, 16 new cases were reported; on the 20th, 10 new cases, and on the 21st, 7. Over one thousand students have gone to their homes. The university lacks adequate hospital facilities. The Sage homestead, which is used as an infirmary, will comfortably accommodate 20, or at most 25 patients. It now contains 60, all very ill, and cots have to be placed in the halls. In this overcrowded hospital there had been up to Feb. 20 as many as eleven deaths, an excessive percentage for typhoid as treated by modern methods. The plan only recently decided on, to convert one of the large college buildings into a hospital, should certainly have been adopted weeks ago. It has been intimated that Cornell University should be held to an even heavier responsibility than was at first supposed for the exposure of its students to the danger of typhoid.

SWINDLING INSURANCE COMPANIES.—Through the confession of a man who until recently was the chief soliciting agent in New York of a Cincinnati life insurance company, and who states that he was an accomplice in the scheme, the district attorney has obtained a detailed account of the doings of a band of conspirators, mostly Italians, who during the last ten years have swindled more than a dozen insurance companies out of thousands of dollars. The chief plotters in the scheme appear to have been Trepani, an undertaker, and Cirone, a barber, and among the persons who have been arrested are two physicians, one an American and the other an Italian. In one instance a man was insured with ten policies, and the swindlers collected \$20,000 on false proofs of death. The following statement is alleged by the confessing agent to have been made to him by Cirone: "We have been in the business for ten years, and we have never made any mistake yet. The insurance people are easy to fool, and we can go on for ten years more. It is the biggest money maker I know of. There would be more in the business if we did not have to give a share to Drs.—and — and the notary public, who certifies the death proofs; and then we generally have to pay the family from which we get the body." The confession went on to say: "Trepani, who had a wide acquaintance among the Italians, knew everybody who was rich and likely to die. Then they would secure a dummy, who would make an application to one or more insurance companies for a policy. They had thousands of dummies from whom they could make a selection. If it could be done, they would give the name of the dummy to the insurance company, and arrange with the family, by the payment of a small sum, to have the dead person buried under the name of the person insured."

Correspondence.

PEYRONIE'S DISEASE — STRABISME DU PÉNIS.

PITTSBURG, Feb. 14, 1903.

MR. EDITOR: An old codger of about 65 years came in one day, and, casting a furtive glance about the room, shut the door with great deliberation. To my question, "What is the matter?" he replied, "Squint of the cock." As I did not take genito-urinary cases, I advised him to consult my friend Dr. Ricord, upon which he handed me a letter, saying that his doctor had told him that I would be most interested in his case. He then told his story. A widower for some years, he was anxious to marry again, but was afraid to do so on account of a most remarkable change in his yard. When erect it curved to one side in such a way as to form a semicircle, hopeless and useless for any practical purposes. I call it, he said, "*squint of the cock*." Examination showed at one side of the root of the penis a firm induration about the size of a cherry, so placed as to completely fill a part of one corpus cavernosum. Of course, on erection blood

filled the other corpus only, and in consequence the penis curved towards the affected side, producing the *squint* of which he spoke. In the works at my disposal, including one well-known manual of genito-urinary surgery, I could find no account of this singular affection, but having learned when in doubt to consult Jonathan Hutchinson's "Archives of Surgery," I there found a very full account of these fibrous plaques in the corpora cavernosa, which if unilateral produce all sorts of distortions of the penis, if bilateral, impotence. Turning to another storehouse, the *Dictionnaire Encyclopédique*, under the article *Pénis*, I there found a very good description, but in addition, what was most interesting, the statement that in about 1765, Peyronie, a French surgeon, had described the disease as *Strabisme du pénis*, the very term used by my old patient. There are very good illustrations of the conditions in Taylor's Manual, but in these eponymic days old Peyronie should have the credit of describing in a happy phrase a very unfortunate defect.

J. W. W., JR.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 14, 1903.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Whooping cough.	Measles.	
New York . . .	3,785,156	1,516	412	20.45	21.44	2.97	.40	1.12	
Chicago . . .	1,886,000	684	193	20.97	23.18	2.52	2.21	.31	
Philadelphia . .	1,878,627	558	189	20.79	20.44	1.97	1.61	.72	
St. Louis . . .	618,481	—	—	—	—	—	—	—	
Baltimore . . .	538,773	215	60	17.67	20.00	2.32	—	1.89	
Cleveland . . .	497,731	—	—	—	—	—	—	—	
Buffalo . . .	387,904	—	—	—	—	—	—	—	
Pittsburg . . .	351,745	139	59	20.14	20.86	6.70	2.16	2.16	
Cincinnati . . .	335,140	—	—	—	—	—	—	—	
Milwaukee . . .	315,307	—	—	—	—	—	—	—	
Washington . .	285,108	—	—	—	—	—	—	—	
Providence . . .	181,230	78	85	19.18	24.66	—	5.11	—	
Boston . . .	608,168	243	66	18.53	21.51	.82	2.47	—	
Worcester . . .	182,044	40	16	15.00	22.50	—	5.00	2.00	
Fall River . . .	115,549	45	18	15.55	22.22	2.22	—	2.22	
Lowell . . .	101,869	42	12	7.14	14.28	—	—	—	
Cambridge . . .	98,639	27	5	11.11	25.92	—	3.70	—	
Lynn . . .	72,497	28	10	7.14	—	8.57	—	—	
Lawrence . . .	69,768	19	10	5.26	57.89	—	—	—	
Springfield . .	69,889	31	10	32.26	6.45	6.45	9.68	6.45	
Somerville . . .	68,110	16	5	56.25	8.25	—	6.25	—	
New Bedford . .	67,198	25	11	20.00	24.00	—	—	—	
Holyoke . . .	49,236	—	—	—	—	—	—	—	
Brockton . . .	44,873	9	1	—	—	—	—	—	
Haverhill . . .	42,104	19	5	15.79	26.81	—	5.26	—	
Newton . . .	37,794	10	2	20.00	20.00	10.00	—	—	
Salem . . .	36,876	20	5	5.00	15.00	—	—	—	
Malden . . .	36,296	9	8	11.11	—	—	—	—	
Chelsea . . .	35,876	16	3	25.00	12.50	—	6.25	—	
Fitchburg . . .	35,069	14	5	28.56	—	14.28	14.28	—	
Taunton . . .	33,656	15	3	26.66	—	6.67	—	—	
Everett . . .	28,620	8	2	—	—	—	—	—	
North Adams . .	27,862	8	3	12.50	12.50	12.50	—	—	
Gloucester . . .	26,131	13	3	—	—	—	—	—	
Quincy . . .	26,043	8	4	37.50	25.00	12.50	12.50	—	
Waltham . . .	25,198	6	1	—	—	—	—	—	
Brookline . . .	22,808	6	—	—	—	—	—	—	
Pittsfield . . .	22,589	5	—	—	40.00	—	—	—	
Chicopee . . .	21,031	8	3	12.50	12.50	—	—	—	
Medford . . .	20,963	2	2	—	—	—	—	—	
Northampton . .	19,883	6	2	33.33	—	16.67	—	—	
Beverly . . .	15,302	2	—	—	50.00	—	—	—	
Clinton . . .	15,161	7	5	14.30	42.90	—	—	—	
Leominster . . .	14,806	—	—	—	—	—	—	—	
Newburyport . .	14,478	12	0	—	16.67	—	—	—	
Woburn . . .	14,300	7	1	—	14.30	—	—	—	
Hyde Park . . .	14,175	4	3	—	75.00	—	—	—	
Adams . . .	13,745	—	—	—	—	—	—	—	
Attleboro . . .	13,677	—	—	—	—	—	—	—	
Marlboro . . .	13,609	3	0	—	—	—	—	—	
Melrose . . .	13,600	9	—	22.22	22.22	—	11.11	—	
Westfield . . .	13,418	3	1	—	33.33	—	—	—	
Milford . . .	13,139	—	—	—	—	—	—	—	
Revere . . .	12,722	2	—	—	—	—	—	—	
Frammingham . .	12,534	1	1	100.00	—	—	100.	—	
Peabody . . .	12,179	—	—	—	—	—	—	—	
Gardner . . .	11,928	—	—	—	—	—	—	—	
Weymouth . . .	11,844	6	1	—	50.00	—	—	—	
Southbridge . . .	11,268	5	—	20.00	20.00	—	—	—	
Watertown . . .	11,077	3	2	—	—	—	—	—	
Plymouth . . .	10,780	—	—	—	—	—	—	—	

Deaths reported, 3,897; under five years of age, 1,123; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 766, acute lung diseases 812, consumption 377, scarlet fever 43, whooping cough 55, cerebrospinal meningitis 7, smallpox 12, erysipelas 5, measles 30, typhoid fever 54, diarrheal diseases 72, diphtheria and croup 95.

From whooping cough, New York 6, Chicago 14, Philadelphia 9, Pittsburg 3, Providence 3, Boston 6, Springfield 3, Worcester 2, Fitchburg 2 and Cambridge, Somerville, Haverhill, Chelsea, Quincy, Melrose and Framingham 1 each. From erysipelas, Chicago 1, Baltimore 3, and Boston 1. From smallpox, Chicago 5, Philadelphia 2, Pittsburg 3, Boston 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,023, for the week ending Jan. 31, the death-rate was 18.01. Deaths reported, 5,329; acute diseases of the respiratory organs (London) 355, whooping cough 163, diphtheria 71, measles 106, smallpox 13, scarlet fever 47.

The death-rate ranged from 7.6 in East Ham to 26.0 in Wigan; London 17.7, West Ham 19.2, Brighton 14.1, Portsmouth 14.2, Southampton 17.5, Plymouth 18.6, Bristol 19.4, Birmingham 18.2, Leicester 13.7, Nottingham 19.1, Bolton 20.4, Manchester 21.7, Salford 20.3, Bradford 16.9, Leeds 17.3, Hull 20.9, New-Castle-on-Tyne 25.1, Cardiff 16.3, Rhondda 19.2, Liverpool 22.6, Smethwick 18.6, West Bromwich 23.5.

METEOROLOGICAL RECORD

For the week ending Feb. 14, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.		Daily mean.	Maximum.	Minimum.								
S. . 8	29.76	30	43	18	64	100	82	NW	8	18	O.	R.	.31
M. . 9	29.76	29	33	25	58	53	55	W	NW	25	20	C.	.02
T. . 10	30.14	34	43	28	66	59	63	W	W	14	12	O.	.07
W. . 11	29.85	42	50	35	66	56	81	SE	SE	8	24	O.	.07
T. . 12	29.64	44	50	38	67	65	66	W	W	30	20	O.	.38
F. . 13	30.03	44	50	37	78	65	69	SW	W	7	13	F.	.01
S. . 14	30.32	30	37	24	47	37	42	NW	NW	12	13	C.	.01
Mean for week.	29.91		44	39			65						.08

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. *Mean* for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING FEB. 21.

J. A. HAWKE, medical director, retired. Detached from Naval Hospital, Mare Island, Cal., and ordered home.

M. H. SIMONS, medical inspector. Ordered to Washington Feb. 24, for examination for promotion and thence to Naval Hospital, Mare Island, Cal.

H. B. FITTS, surgeon. Detached from the Naval Hospital, Sitka, Alaska, and ordered to the "Pensacola."

H. T. NELSON, JR., acting assistant surgeon. Ordered to Marine Barracks, Sitka, Alaska.

D. N. BERTOLLETT, medical inspector. Detached from the "New York" and from duty as fleet surgeon of the Pacific Station, and ordered home to wait orders.

D. O. LEWIS, surgeon. Detached from the "Pensacola" and ordered to the "New York" for duty as fleet surgeon of the Pacific Station.

G. C. GRIEVE, acting assistant surgeon. Ordered to the Navy Yard, Boston, Mass.

J. R. DYKES, acting assistant surgeon. Ordered to the "Franklin."

V. DABNEY, acting assistant surgeon. Ordered to the "Pensacola."

T. C. BLACKBURN, acting assistant surgeon. Ordered to the "Culgoa."

RECENT DEATHS.

ERNEST GIBBORN BURKE, M.D., M.M.S.S., died in Quincy Feb. 19, 1903, aged thirty years.

ASHLEY ADAM WEBBER, M.D., of Brooklyn, N. Y., died on Feb. 19 at the age of forty. His death was due to injuries received last autumn in an accident, in which to save from collision a carriage in which a family party was driving, he sacrificed his automobile and risked his own life. He was a native of Maine, and was graduated from the Medical Department of the University of the City of New York in 1888. He was for a number of years an attending surgeon to the Long Island Throat Hospital and Eye Infirmary. Dr. Webber was widely known as the champion revolver shot of the world, and he had won innumerable trophies by his extraordinary skill in shooting.

WILBUR H. BLAUVELT, M.D., of Newark, N. J., a graduate of the New York University Medical School in 1900, died on Feb. 19, at the age of twenty-seven.

APPOINTMENTS.

L. R. G. CRANDON, M.D., has been appointed third assistant visiting surgeon at the Boston City Hospital.

LEO V. FRIEDMAN, M.D., has been appointed third assistant visiting physician for diseases of women at the Boston City Hospital.

WILLIAM J. MCCAUSLAND, M.D., has been appointed to the position of resident surgeon at the Boston City Hospital Relief Station, Haymarket Square.

ERRATUM.

On page 216, first column, five lines from the bottom of the JOURNAL, Feb. 19, for 1817 read 1827

BOOKS AND PAMPHLETS RECEIVED.

Manual of Bacteriology. By Robert Muir, M.A., M.D., F.R.C.P. (Ed.), and James Ritchie, M.A., M.D., B.Sc. American edition (with additions). Revised and edited from the third English edition, by Norman MacLeod Harris, M.B. (Tor.). Illustrated. New York: The Macmillan Company. 1903.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden. Authorized American Edition, translated under the direction of Boardman Reed, M.D. Parts I and II. New York: E. B. Treat & Company. 1903.

Therapeutics of Infancy and Childhood. By A. Jacobi, M.D., LL.D. Third edition. Philadelphia and London: J. B. Lippincott Company. 1903.

The American Year-Book of Medicine and Surgery, being a Yearly Digest of Scientific Progress and Authoritative Opinion in All Branches of Medicine and Surgery, Drawn from Journals, Monographs and Text-Books of the Leading American and Foreign Authors and Investigators, Collected and Arranged with Critical Editorial Comments. By various writers, under the General Editorial Charge of George M. Gould, M.D. Surgery. Illustrated. Philadelphia, New York and London: W. B. Saunders & Co. 1903.

The Practical Treatment of Stammering and Stuttering, with Suggestions for Practice and Helpful Exercises. By George Andrew Lewis. And a Treatise on the Cultivation of the Voice, with a Discussion of Principles and Suggestions for Practice. By George B. Hynson, M.A. Illustrated. Detroit: George Andrew Lewis. 1902.

Paralysis of All Four Limbs and of One Side of the Face with Dissociation of Sensation, Developing in a Few Hours and Resulting from Meningo-Myeloencephalitis. By Charles K. Mills, M.D., and William G. Spiller, M.D., of Philadelphia. Reprint. 1903.

The Anatomy of the Human Peritoneum and Abdominal Cavity, Considered from the Standpoint of Development and Comparative Anatomy. By George S. Huntington, M.A., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

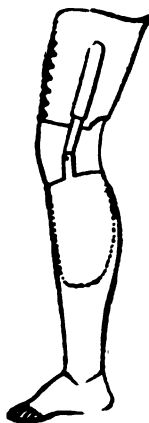
Tenth Annual Report of the State Charities Aid Association to the State Commission in Lunacy. New York. Nov. 1, 1902.

Report on the Mentally Defective. By George F. Canfield. President of the State Charities Aid Association.

Report of the Committee on Politics in Penal and Charitable Institutions.

Centralization in State Charitable Institutions. By George E. Dunham, Secretary of the Board of Visitation of the Utica State Hospital for the Insane.

Regulations for the Government of the Public Health and Marine Hospital Service of the United States. Approved Nov. 21, 1902. Washington, D. C.



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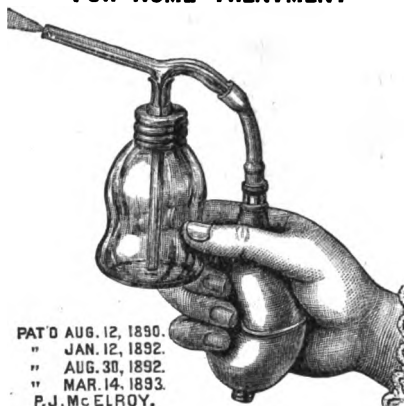
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Original Articles.

A RESEARCH INTO THE MEANS OF CONTROLLING THE BLOOD PRESSURE.¹

BY GEORGE CRILE, M.D., CLEVELAND, OHIO.

THE privilege of addressing the Boston Medical Society is deeply appreciated by me, and it is with no little hesitation that I venture to present to this distinguished body, whose members have added so much luster to medicine, the results of an experimental study into the means of controlling the blood pressure.

If, in presenting this summary of a series of more than two hundred experiments upon a subject which has been neglected, both in research and in practice, statements are made which are contradictory to current opinions, it is with all respect due them, and wholly in the spirit of an earnest search for the truth.

Of the various cases of diminished blood pressure demanding a study of the means for their control, none are more urgent than those attending shock and collapse. A study of shock and collapse may well serve to illustrate the relative value of the various means of controlling the blood pressure in other conditions.

SHOCK.

In shock the essential phenomenon is a diminution of the blood pressure. Since there are no demonstrable lesions in the fatal cases, and no later effects in those that recover, we will assume exhaustion, rather than structural lesions, to be the cause of this fall. It must then be an exhaustion of the cardiac muscle; of the cardiac centers; of the blood vessels; or of the vaso-motor center.

(a) Is it due to fatigue, or exhaustion of the cardiac mechanism? The heart, as an organ, is noted for the large amount of labor it may perform without fatigue. In shock, on account of the diminished blood pressure, there is even less work for the heart muscle to do than in the normal state. In a series of experiments after the animal had been reduced to a degree of shock presumably fatal, the blood pressure was, by special means, raised much higher than normal. The heart then performed its normal function. There was, then, no material fatigue of the heart muscle.

(b) Is there fatigue of the cardio-inhibitory center? In experiments in which the animals had been reduced to a degree of shock presumably fatal, the blood pressure was by special means raised to the normal. Then on manipulation of the laryngeal mucosa a normal reflex inhibition of the heart was induced. The cardio-inhibitory center and its peripheral nerve mechanism were, therefore, not exhausted. That the cardio-accelerator mechanism remains active in every degree of shock is constantly evidenced by the increasing rapidity of the heart, until the inauguration of the phenomena of death. In a series of experiments the heart was isolated from the nervous system by severing both vagi and both accelerantes. Shock in such animals was as readily produced as in the controls. We may then exclude the heart and its nerve mechanism as factors in the primary causation of shock and

look to the loss of peripheral resistance as the essential factor. The loss of peripheral resistance may be due to: (a) An exhaustion of the peripheral nerve vascular mechanism, the anatomical periphery; or, (b) an exhaustion of the vaso-motor center. In a series of experiments in which both vagi and both accelerantes had been severed, a physiologic dose of curare given, and artificial respiration maintained, the animals were reduced to such a degree of shock that the vaso-motor center gave the usual physiologic proof of exhaustion. Varying doses of adrenalin were then given. The blood pressure rose proportional to the dose, even much higher than the normal.² Fatigue of the blood vessels may then be excluded. That the vaso-motor center becomes exhausted in complete shock is indicated by the absence of any rise in the blood pressure on electrical stimulation of the sciatic nerve, or burning the paw, by giving a physiologic dose of strychnin, or by deepest asphyxia, all of which cause stimulation of the vaso-motor center.³ Cocainizing the vaso-motor center, or severing the cord just below the medulla, causes a fall in the blood pressure to about the same level as that of profound shock.⁴ We may then conclude that shock is essentially an exhaustion or breakdown of the vaso-motor center. From this standpoint, then, let us consider the vaso-motor stimulants, such as strychnin. In forty-eight experiments it was found that strychnin in therapeutic doses does not cause a rise in the blood pressure. In another series in which the dose was gradually increased until the convulsive stage was reached a remarkable rise occurred. Was this rise due to the muscular contractions in the convulsions? No; since an equal or greater rise occurred when convulsions were prevented by preliminary injections of curare—the centers presiding over the vaso-muscular system and voluntary muscular system seem to be equally susceptible to the action of strychnin. Was the rise partly due to a simultaneous stimulation of the heart? No; since strychnin caused an equal rise in the blood pressure in animals, in which both vagi and both accelerantes had been previously severed and a paralyzing dose of curare given;⁵ neither was an increased action noted on making direct observations of the heart, nor by noting the endocardial pressure. It was, therefore, a pure vaso-motor stimulant. A brilliant stimulant indeed—sometimes doubling the normal blood pressure and lasting from thirty minutes to several hours. Each succeeding physiologic dose caused less effect, and after from two to four doses no appreciable effect was obtained. The blood pressure in the meantime had fallen, and at last had reached the same level as in most profound shock. It was at this stage not possible by reactions, such as electric stimulation of the sciatic nerve, burning of the paw, by deepest asphyxia, nor by a study of the terminal tracings, to distinguish between these animals and the animals in profound traumatic shock.⁶ The vaso-motor center in each was exhausted. It was, in effect, shock produced by strychnin. The effect upon the function of the vaso-motor center seemed to be alike, whether the stimulation was mechanical and external, as in injuries or operation;

¹ Read at the Boston Medical Library Meeting, Jan. 19, 1908.

² See Fig. I.
³ See Fig. III.

⁴ See Fig. XIX.
⁵ See Fig. IV.

⁶ See Fig. II.

or internal, as from strychnin. Conversely, in a series of experiments in which strychnin was given in various degrees of shock in such dosage as to cause a stimulation, the effect was proportional to the degree of shock; that is, when but little shock was present, a marked effect from strychnin was obtained — when most profound there was no effect. In the intervening degrees, the effects were proportional, but after giving the strychnin, the animals not yet in complete shock always passed into shock of deeper degree.⁷ Later in the research, it was found that the most convenient and certain method of producing shock for experimental purposes was by the administration of physiologic doses of strychnin.⁸ It then follows that treatment of shock by vaso-motor stimulants in the form of drugs is on precisely the same basis as treatment by burning the animal or crushing its paws, or by subjecting it to injury or operation. It would seem to be as reasonable to treat strychnin shock by administering traumatism, as traumatism shock by strychnin.

What has been said of strychnin may be assumed to apply equally well in the case of other stimulants of the vaso-motor center. Turning then to cardiac stimulants, we must first consider how much influence an increase in the force and frequency of the heart beats have upon the blood pressure. Even in normal animals, when the peripheral resistance is at its best, an increase in the force and frequency of the heart beats has but a limited power of increasing the blood pressure. In a series of experiments in which the vaso-motor center was reduced to varying degrees of exhaustion, and the vagi severed, — thereby increasing the force and frequency of the heart beats, — the rise in the blood pressure sustained an inverse ratio to the degree of exhaustion; and in the cases in which the vaso-motor center was entirely exhausted, the blood pressure was not raised by any increase in the force and frequency of the heart beats. An artificial circulatory apparatus was arranged so that the peripheral resistance was represented by the atmospheric pressure in a cylinder which contained an elastic bag filled with water and communicating by means of tubing with an artificial heart on the outside. In this rough way the force and frequency of the heart beats and the peripheral resistance could be increased or diminished at will. It was not possible by any increase in the force and frequency of the artificial heart beats to raise and maintain the artificial blood pressure more than 10 mm. The velocity of the circulation was, of course, much increased. On the other hand, any change in the peripheral resistance was attended by an equal change in the blood pressure. From the standpoint of physics, as well as physiology, it would seem that the peripheral resistance (vaso-motor action) fixes the gauge for the height of the blood pressure, while the heart supplies the force necessary for circulating the blood.

This would leave but a limited range of possibilities for heart stimulants. In another series of experiments cardiac stimulants, particularly digitalis, were tested. It was found that as the peripheral resistance was lowered, the effect upon the blood pressure was diminished, and when complete exhaustion of vaso-motor center existed, the

cardiac stimulants had but slight influence upon the blood pressure.⁹ Other drugs which are, in practice, generally included in the class of stimulants, such as alcohol and nitro-glycerin and amyl-nitrite, were studied at length. No justification could be found for classifying these drugs as stimulants. In the case of alcohol, in not a single instance was there a sustained improvement in the blood pressure or in the respiration. On the contrary, the most constant and the most marked effect upon the blood pressure was a decline. The rapidity and the extent of the decline were proportional to the depth of the shock and the dosage of alcohol.¹⁰ In all the experiments upon nitro-glycerin, when any effect was noted, it was an immediate fall in the blood pressure. This occurred in every degree of shock. A compensatory rise equal to the fall in most instances followed. The rising curve was usually more gradual than the falling.¹¹ Most of the animals showed a marked degree of toleration. On the whole, nitro-glycerin acted unfavorably in shock. As in digitalis and alcohol, when considerable dosage had been given, the final break-down of the circulation was more sudden than in the control animals.

If the foregoing be true, it is obvious that in true shock the use of stimulants acting upon the vaso-motor, the cardiac and other centers of the medulla are, on the whole, either inert or harmful. In considering other methods of controlling the blood pressure, normal saline solution demands consideration. Normal saline administered intravenously or subcutaneously is a purely mechanical aid to the circulation, which temporarily increases the blood pressure. The solution in any considerable quantity is not retained in the blood vessels, but is eliminated at a rate proportional to the rate of administration through the same tissues that normally absorb water, — mainly the alimentary tract. That the blood does not tolerate much dilution with normal saline was shown also by repeated observations upon the number of corpuscles and the amount of hemoglobin during its administration. The accumulation of saline solution in the walls, and in the lumen of the stomach and of the intestines, in the peritoneal cavity and in the liver, after approximately 820 cc. per kilo has been given, causes so much abdominal distension as to progressively hinder and finally prevent the excursions of the diaphragm and the movable ribs, causing death from respiratory failure. In the cases of pure shock, that is, in cases in which the vaso-motor center has been exhausted, and no blood has been lost, the rise in the blood pressure, even during its administration, if prolonged, is not sustained on account of the absence of the peripheral resistance and the elimination of the solution.¹² Saline solution has a limited range of usefulness. It is obvious then that to increase and sustain the blood pressure when the vaso-motor center is exhausted, it is necessary to create a peripheral resistance either by a drug acting upon the blood vessels themselves or by mechanical pressure. Adrenalin in the normal animal, or in any degree of shock, caused a marked and, in sufficient dosage, an enormous rise in the blood pressure. This rise occurred when the vaso-motor center was proven to have been exhausted¹³; when it was cocaineized,¹⁴ and when it was destroyed.

⁷ See Fig. V. ⁸ See Figs. III and IV.

⁹ See Figs. VI and VII. ¹⁰ See Figs. VIII and IX. ¹¹ See Fig. X.
¹² See Fig. XII. ¹³ See Figs. I and —. ¹⁴ See Fig. XIII.

It occurred when in addition both vagi and both accelerantes had been severed, and the animal was under the influence of curare. In larger doses a marked inhibitory action upon the heart was noted. This was immediately relieved by the injection of atropin.¹⁵ It was finally found that the most effective method of administration was by a continuous intravenous infusion in salt solution, varying in strength from 1 to 50,000 or 100,000. After the experimental research seemed to have shown that adrenalin and salt solution thus administered could maintain the circulation with a heart isolated from the nervous system by section of both vagi and both accelerantes, with the vaso-motor center exhausted (complete shock), and with the muscular system paralyzed with curare, it followed that if these observations were correct, a decapitated animal must be kept alive during a certain period of time. An ordinary laboratory dog was decapitated. Adrenalin and saline solution were immediately and continuously administered. It was found that the blood pressure could be controlled at will.¹⁶ The beheaded animal lived ten and one-half hours, and finally died of air emboli, produced by the artificial respiration. On beheading animals, the primary fall in the blood pressure was approximately the same as in profound shock.¹⁷

But one clinical application of adrenalin when the vaso-motor center was exhausted has been made. In this instance, a patient who was dying was kept alive for nine hours by the continuous administration of adrenalin and the application of external pressure. It is to be remembered that, owing to rapid oxidation in the tissues, adrenalin is more effective when given intravenously, and since it is even more rapidly oxidized in the blood, it should be given continuously. It is found to be most conveniently given in saline solution from a burette, the rate of flow being controlled by a screw cock attached to the rubber tube. The circulatory phenomena should be under continuous observation. Great caution must be exercised in the administration of adrenalin.

In considering external pressure as a means of supplying a peripheral resistance it is well to bear in mind that when the vaso-motor center is becoming exhausted, the blood accumulates in the veins—especially in the larger venous trunks. The condition may be described as an intravenous hemorrhage. Pressure applied uniformly upon the skin from the periphery toward the center over an area containing such intravenous hemorrhage causes the blood to flow toward the heart just as the normal vascular tone does. After numerous experiments, from water baths to pneumatic chambers in which it was attempted to devise a method of supplying an artificial peripheral resistance, a rubber suit was found to be the most practical. The suit is made of a double layer of specially constructed rubber, and when inflated gives a uniform pressure upon the surface, producing an artificial peripheral resistance. The inflation is accomplished by means of a bicycle pump, and may be varied at will. Regardless of the posture of the patient, a considerable portion of the blood may be delivered to the right heart, preventing thereby, to a certain degree, the continuance or development of cerebral anemia. By means of this suit, the blood pressure may be, within a range of 25 to 60 mm. mercury, placed

under the operator's control. The pneumatic suit has been employed in many clinical cases, and the effects studied by means of the Riva-Rocci-Cushing sphygmomanometer.

COLLAPSE.

For the purpose of this paper the term "collapse" is applied to the cases of the more sudden fall of the blood pressure from hemorrhage, from injuries of the vaso-motor center, or from cardiac failure. These conditions represent suspension of function rather than exhaustion of centers. There being no exhaustion, stimulants may be of value. As an illustration: If one animal is subjected to such a degree of shock (exhaustion of the vaso-motor center) as to produce a sufficient accumulation of blood in the veins (intravenous hemorrhage) to cause a decline in the blood pressure to 25 mm., and if another animal is subjected to an extra vascular or ordinary hemorrhage, until the blood pressure has been reduced an equal degree, it would be impossible, on the symptoms alone, to make a differential diagnosis. Yet, in the one case, stimulants could have no effect because the vaso-motor center is exhausted, and in the other the effect might be marked because the center is not exhausted.¹⁸ In the animal with the exhausted vaso-motor center, (or shock) saline solution could be of little assistance, but in the animal subjected to ordinary hemorrhage, and having a normal vaso-motor center saline infusion might be of marked assistance. In collapse, mechanic, thermic, electric or therapeutic stimulants, such as bruising, burning, application of electrodes, the administration of saline infusion, or change of posture, may be beneficial.

After having considered the means of controlling the blood pressure in cases in which there is exhaustion of the vaso-motor center (shock), and in cases in which there has been a temporary suspension of the function of the heart or of the vaso-motor center (collapse), it remains to consider the control of the blood pressure in cases in which the vaso-motor center, the cardiac centers, the heart itself and the respirations have all ceased to show any functional activity,—that is to say, when the animal is apparently dead. In a series of experiments, observations were made upon the use of electricity; upon needling the heart; upon massaging the heart; upon making rhythmical pressure upon the thorax over the heart; upon the injection of strychnin, ammonia and other drugs into the chambers of the heart and into the heart muscle; upon artificial respiration; upon the administration of salt solution intravenously; upon rapidly alternating the posture of the animal, head up and head down,—all of these methods were employed singly and in various combinations, but in no instance did we find it possible to resuscitate the animal after more than fifty-eight seconds after the last beat of the heart.

The most favorable results were obtained by combinations of rhythmic pressure upon the thorax over the heart, artificial respiration and intravenous saline infusion. Unless the heart and the vasomotor center resumed action, the blood pressure could be raised and sustained to but a very limited degree. During the experiments upon the decapitated dog, it was observed that adrenalin acted upon the blood vessels after the circulation

¹⁵ See Fig. XIV. ¹⁶ See Figs. XV and XVI. ¹⁷ See Fig. XV.

¹⁸ See Fig. XVIII.

had ceased. It was then planned to kill the animals by asphyxia, give artificial respiration, make rhythmic pressure upon the thorax over the heart, and at the same time administer adrenalin in saline solution into the jugular vein. By this means, adrenalin might, through the feeble artificial circulation, be brought into contact with the walls of the blood vessels, causing their contraction, thereby increasing the blood pressure, which in turn might re-establish the coronary circulation, which in turn might re-establish the action of the heart. By this method animals apparently dead for various periods up to fifteen minutes were restored to conscious life again.¹⁹ The circulation and the respiration in dogs electrocuted by a shock of 2300 volts of an alternating current were re-established.

SUMMARY.

In many instances the control of the blood pressure is synonymous with the control of life itself. Surgical shock is an exhaustion of the vaso-motor center. Neither the heart muscle, nor the cardio-inhibitory center, nor the cardio-accelerator center, nor the respiratory center, are other than secondarily involved. Collapse is due to a suspension of the function of the cardiac or of the vaso-motor mechanism. In *shock* therapeutic doses of strychnin are inert, physiologic doses are dangerous or fatal. If not fatal, increased exhaustion follows. There is no practical distinction to be made between external stimulation of this center, as in injuries and operation, and internal stimulation by vaso-motor stimulants, as by strychnin. Each in sufficient amount produces shock, and each, with equal logic, might be used to treat the shock produced by the other. Stimulants of the vaso-motor center are contraindicated. In *shock* cardiac stimulants have but a limited range of possible usefulness, and may be injurious. In *collapse* stimulants may be useful because the centers are not exhausted.

Saline infusion in *shock* has a limited range of usefulness. In *collapse* it may be effective. The blood tolerates but a limited dilution with saline solution. Elimination takes place through the channels of absorption. Its accumulation in the splanchnic area may be sufficient to fix the diaphragm and the movable ribs, causing death by respiratory failure. Saline infusion in shock raises but cannot sustain the blood pressure.

Adrenalin acts upon the heart and blood vessels. It raises the blood pressure in the normal animal; in every degree of shock; when the medulla is cocainized, and in the decapitated animal. It is rapidly oxidized by the solid tissue and by the blood. Its effects are fleeting; it should be given continuously. By this means the circulation of the decapitated dog was maintained ten and one-half hours. In excessive dosage there is a marked stimulation of the vagal mechanism. Due caution must be exercised.

The pneumatic rubber suit provides an artificial peripheral resistance without injurious side effects, and gives a control over the blood pressure within a range of from 25 to 60 mm. mercury. By the combined use of artificial respiration, rhythmic pressure upon the thorax and adrenalin injected into the jugular vein, animals which were apparently dead as long as fifteen minutes were resuscitated.

¹⁹ See Fig. XVII.

ON ROUTINE DETERMINATIONS OF ARTERIAL TENSION IN OPERATING ROOM AND CLINIC.¹

BY HARVEY CUSHING, M.D., BALTIMORE, MD.,

Associate in Surgery, the Johns Hopkins Hospital.

THERE has been a long-felt want in the surgical operating room, possibly even more than in the clinic, for some practical form of apparatus which will give with facility numerical equivalents for variations in pulse tension, and by means of which consecutive observations on this quality of the pulse may be diagrammatically charted.

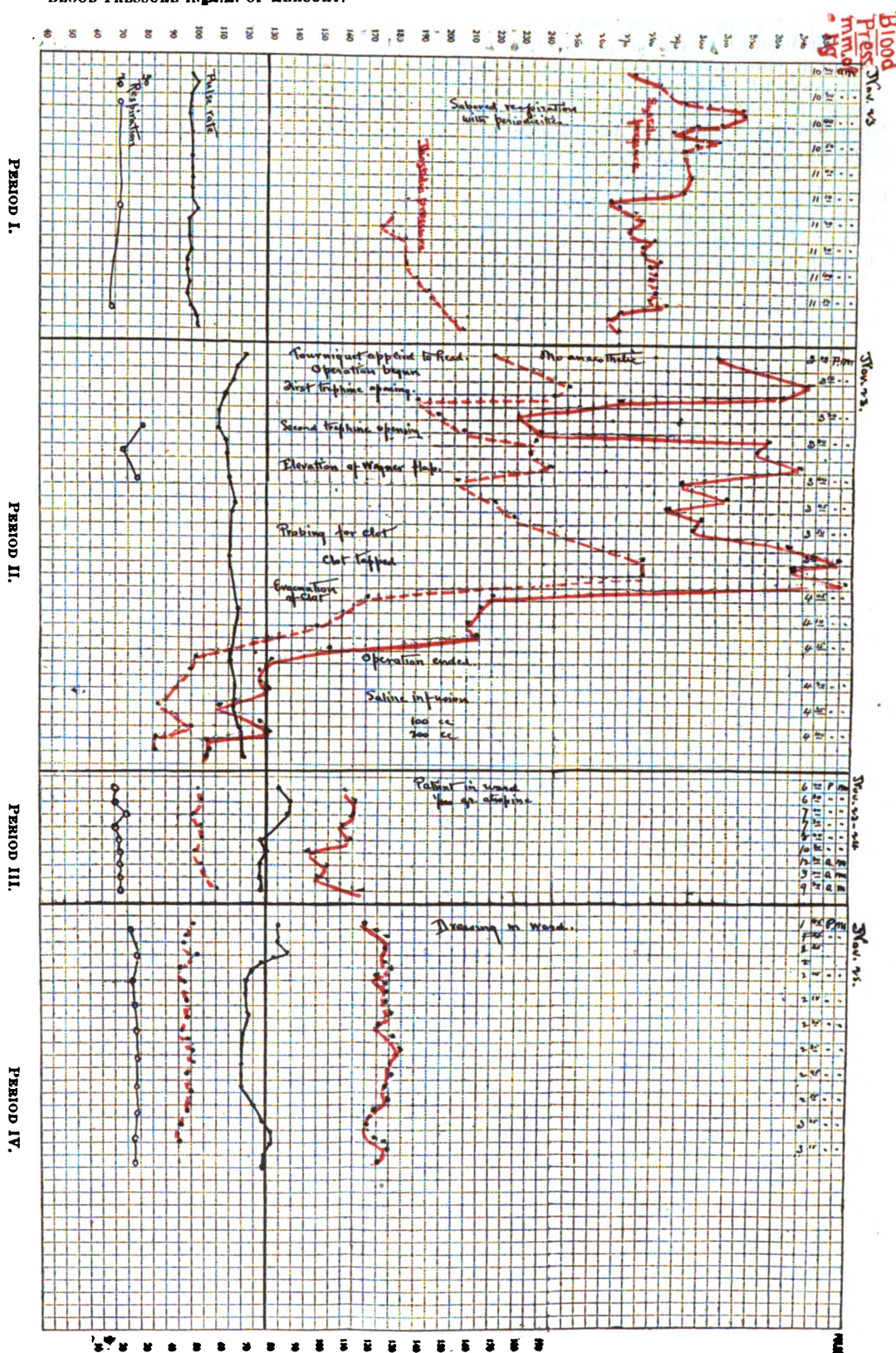
During a critical operation the hearsay dependence which the surgeon must place on the palpating finger of the anesthetist for a knowledge of the cardiac strength of his patient may oftentimes be one of his most trying responsibilities. Were it possible, therefore, under such circumstances for him to be told with the definiteness which figures alone can give, or for him to read by a glance at a plotted chart that the strength of the cardiac impulse, irrespective of its rapidity, was keeping at a normal level or was affected in one way or another by certain manipulations, not only would this feeling of responsibility be much lightened, but the operative procedure might oftentimes be modified with a consequent lessening of its risks.

It by no means behooves us to disparage the value of an educated touch as a means of estimating vascular qualities, but the tactile and muscular sense, no matter how well trained, must give way to some method more precise, especially when serial observations for purposes of demonstrating alterations taking place from day to day, hour to hour, or moment to moment are demanded. For this an instrument of precision is needful, and it may be said in passing that no amount of training in palpation of the arterial pulse will educate the muscular sense as well and as quickly as when there is an associated use made of some form of sphygmomanometer. In place of the loose and indefinite terms applied to degrees of tension one learns to interpret them with some measure of numerical accuracy, and recognizes a "weak" or "compressible" pulse as one with a tension perhaps of 80, a "hard" or a "bounding" pulse as one, for instance, of 260.

The belief is more or less prevalent that the powers of observation so markedly developed in our predecessors have, to a large extent, become blunted in us, owing to the employment of instrumental aids to exactness, and the art of medicine consequently has always adopted them with considerable reluctance. Take for example the two instruments upon which we place today our chief reliance for obtaining ordinary routine clinical data — the thermometer and the watch. Although the former instrument dates back to the time of Galileo, and was used by him as a means of estimating body temperature, the necessity of thermometric observations in disease had no widespread clinical recognition until after the publication of Wunderlich's classical monograph in 1868. Today one wishes to know, not as in pre-Boerhaavian times solely by manual palpation that there is a more or less evident pyrexia, but the degrees or fractions of degrees of variation, which our instrument of precision alone can supply. Galileo, also,

¹ Read by invitation at the Boston Medical Library, Jan. 19, 1903.

BLOOD PRESSURE IN M.M. OF MERCURY.



Four fragments from blood-pressure chart of a case of apoplexy in which systolic and diastolic pressures were recorded. Heavy line between 180 blood pressure and 80 pulse-rate taken to represent normal aorticase. Solid charted line represents pulse rate. Broken lines represent blood pressure: upper = systolic; lower = diastolic.

PERIOD I.—Condition before operation with a vague pulse of high tension. PERIOD II.—Operative period with extraordinary drop in pressure consequent upon evacuation of blood clot. Pulse-rate not affected. Cessation of vagus stroke. PERIOD III.—Normal levels immediately after operation. PERIOD IV.—Condition two days after operation. Perceptible return of vagus stroke. Slight rise in systolic pressure, without particular alteration in mean pressure.

by shortening or lengthening the arm of a pendulum until it would oscillate synchronously with the pulse-rate, learned to speak with some accuracy of a "10-inch" or a "12-inch" pulse, and an English physician, Sir John Floyer, in 1710, had constructed for himself a chronometer with a second hand, his "pulse-watch"; but not until long afterward did the rate of the heart-beat come to be universally registered with some numerical definiteness instead of being spoken of merely as relatively "rapid" or "slow." At the present time, largely owing to the convenience of our timepieces, pulse-rate is commonly recorded alongside of the temperature and perhaps of the respiration on our clinical charts, to the utter neglect of a numerical record of that vascular quality which in many conditions is incomparably of greater clinical consequence, namely, arterial tension.

The familiar query is raised. Are we not surfeited with instruments of accuracy in clinical work, and are not approximate values in the long run as useful as precise ones? I can only reply that there is no superabundance of simple instruments which like the watch and thermometer enable the nurse or orderly to accumulate data, the interpretation of which remains for the visiting physician, and I earnestly believe that the time is not far distant when routine observations on blood pressure in cases that are shown to be appropriate will be taken in our hospitals in correspondence with the present thermic and pulse-rate observations.

For the full appreciation of the reliance which the physiologist does and the physician should place on blood-pressure observations, one needs after some clinical experience to return once more for work in the laboratory of the former. For the experimentalist to make observations pertaining to the cardiovascular system without dependence on the records of manometer and kymographion would be the equivalent of a clinical study of fevers without thermometric observations. The simple and accurate method of recording blood pressure from an open vessel so serviceable to the physiologist is, of course, precluded in the clinic, and many devices have been suggested in substitution for it. For one reason or another most of the instruments which have courted clinical introduction since the early appliances of v. Basch (1887) and Potain (1889) have received only a half-hearted welcome, and although from one or another of them in spasmodic fashion information of great interest and value has been obtained by individual skilled observers, they have not made for themselves a lasting place in the clinical armamentarium². Some of them, as the Mosso sphygmomanometer, have been so complex as to demand for their manipulation especial technical skill. In others single observations have required a length of time sufficient to condemn them, and, like the Hürthle plethysmograph, are only adaptable for laboratory purposes. The sphygmometer of Bloch and its various modified forms possess too many sources of error for a widespread adoption.

²For those desirous of a careful historical résumé of the subject of blood-pressure estimations, together with a description of the structure and principle of action of some of the numerous forms which have been introduced, a series of articles by N. Vaschide and J.-M. Lahy on "La technique de la mesure de la pression sanguine particulièrement chez l'homme," will be found in the *Archives Générales de Médecine* for September, October, November and December of 1902. An extensive bibliography accompanies this important "Revue spéciale" of the subject.

The Gärtner tonometer, otherwise a most valuable instrument, possesses disadvantages for the reason that the circulatory activity in the fingers during states of low blood pressure is not sufficient to give the necessary color contrasts, and these very states of low blood pressure are the ones demanding the closest clinical attention. The actual needs are for an apparatus whose mechanical principle and application is so simple that the mere act of registration of arterial tension requires no particular preliminary training, and in which there is the least possible personal coefficient of error. The apparatus should, furthermore, register tension with sufficient celerity so as to allow of a frequent repetition of observations in a short time, since in the critical moments of any operative procedure likely to upset circulatory conditions, alterations in tension from moment to moment are called for. It should be as free as possible from annoyances or discomfort to the patient during its application, since these factors in themselves may reflexly affect arterial tension. It should, furthermore, be portable, durable and sufficiently inexpensive to allow of its widespread distribution.

In the line of work in neurological surgery, which I have been given the privilege of following in Professor Halsted's clinic, the desirability of the routine employment of a blood-pressure apparatus is perhaps especially apparent. Having become dependent on the interpretations of manometric tracings for the outcome of some experimental work upon cerebral compression, the possibility of a practical application of these observations to the diagnosis of stages of compression in man without some corresponding aid seemed prohibited. The propriety, also, of instituting operative procedures for the relief of these processes without concomitant blood pressure tracings seemed questionable, to say the least. Various forms of apparatus experimented with had given but little satisfaction, and not until the instrument, which I shall demonstrate with some apologies, as it is already familiar to many of you, was brought to my attention in its own home, did any of them promise to meet the demands of the operating table situation.

Two years ago, while on a tour among the Italian University towns, I had the good fortune in Pavia to be shown through the medical wards of the old Ospedale de S. Matteo by Dr. Orlandi, a colleague of Riva-Rocci, and to my great interest found that a simple "home-made" adaptation of the latter's blood-pressure apparatus was in routine daily use at the bedside of every patient. I think at the time they were making an especial study of chlorosis, in examples of which the clinic abounded. Thanks to Dr. Orlandi, I was given a model of the inflatable armlet which they employed, and practically the same form of apparatus which was in use in Pavia has been utilized at the Johns Hopkins Hospital with increasing satisfaction ever since.

The instrument, in part, consists of a distensible cylinder or tire of thin rubber covered with a linen jacket. This cylinder, while encircling an extremity, preferably the upper arm, is inflated by means of a double cautery bulb until the pulse-wave, peripheral to its seat of application, becomes no longer palpable. Inserted in the course of the rubber tubing, which connects the bulb and tire, is a simple upright

mercury manometer, which records the pressure of the air in the cylinder necessary to obliterate the pulse. The principle is the same, therefore, as in many other varieties of sphygmomanometer, and the apparatus differs only in some important details from the appliance described by Hill and Barnard. The particular form of the instrument I have to demonstrate is somewhat more carefully constructed than the home-made ones we have heretofore employed, and possesses the advantage, following a suggestion of Dr. H. W. Cook, of having a disjointed manometer tube, enabling it to be enclosed in a smaller compass.³

It is presumable that this apparatus by no means represents what will be the final form of clinical sphygmomanometer, for there are numerous criticisms, chiefly on the ground of inaccuracy, which may justly be raised against the Riva-Rocci instrument. It can be seen at a glance that there must be considerable variation of tension as measured in different individuals, according to the amount of panniculus or muscle covering the vessel which is being compressed, as well as upon the degree of thickening and rigidity of the arterial walls themselves. This objection, although deserving of consideration, may for the time being be waived on the ground that the record of variation in arterial tension in a given case, with its gradual fall or rise under different circumstances, represents the objective point of most of our observations rather than comparative records made upon different patients.

Another very proper objection to this form of instrument, which the physiologist naturally raises, is that it records systolic pressure or tension at the crest of the pulse-wave alone, and does not give the mean or average arterial tension. And, as a matter of fact, Drs. Cook and Briggs have shown that the diastolic pressure after a little experience may be registered with this apparatus on the plethysmographic principle, by recording the level at which there is the greatest visible pulsation in the column of mercury when the tube between the manometer and bulb is compressed. The studies of Howell and Brush have shown that this level of greatest pulsation, on which principle the Mosso, the Hill and Barnard and other sphygmomanometers operate, corresponds with the diastolic rather than mean blood pressure, as heretofore presumed by most investigators. Dr. Erlanger has skillfully combined the two forms of systolic and diastolic apparatus in a way which renders it possible, as in the Hill and Barnard apparatus, to establish with some degree of accuracy the absolute mean of blood pressure.

For the purposes, however, to which we have chiefly put the apparatus, the record of systolic level has amply sufficed to give us the data we desired, and the conditions in which alterations in systolic level are unaccompanied by a more or less equivalent alteration in mean level (*cf.* accompanying chart) are sufficiently unusual in clinical cases to render them for the time being relatively unimportant. If it is a desirable thing, as it seems to be,

to register blood pressure as a routine in the clinic as well as during many of the critical medical or surgical operative procedures, it is advisable, for present purposes at least, to use the simplest, although it be a somewhat inaccurate instrument, and the errors of the Riva-Rocci apparatus are more than compensated for by its ready applicability to most clinical demands. Long experience has taught us when frequent observations on the pulse-rate and temperature are of especial clinical value. It will require time as well to indicate with definiteness the conditions in which blood-pressure observations are of the greatest utility, and many a long chart will be plotted seemingly to no purpose before there is a final selection of conditions wherein it will be considered negligent to omit these observations. When these conditions have become more or less roughly determined by the everyday use of some simple form of instrument like the one under discussion, its possible errors should doubtless be controlled by the observations taken on same apparatus which is more accurate from the physiologists' standpoint and by those individuals who have become especially skilled in its manipulation. At present one barely knows what cases to select, what ones to pass by. New facts of interest from a purely physiological point of view, or, what is to us more essential, of prognostic, diagnostic or therapeutic value to the clinician, are constantly being brought to light.

It will be impossible, in the short time allotted, to more than suggest some of the lines of observation which are deserving of especial attention. There are, of course, many maladies usually characterized by a hypo- as well as others by a hyper-tension of the arterial blood stream, and tabulations of the pressure levels commonly found in these diseases have been made by Potain and others. Such records may be of considerable value for purposes of differential diagnosis, as, for example, between states of simple albuminuria and those of actual chronic nephritis, or again between the hemiplegia of intracranial hemorrhage and that of cerebral softening. There are other clinical states which are associated with great cardiac instability, shown by the variation in strength of successive contractions, and no form of apparatus will record in a satisfactory way the irregularities such as may be found, for instance, in certain severe cases of Basedow's disease. Alterations in blood pressure, nevertheless, which occur with a definite rhythm, such as those which occasion or accompany periodic respiratory phenomena, as of the Cheyne-Stokes type or those which, for example, characterize the pulsus paradoxus, are easily recognized by the apparatus which has been described.

It is, however, rather from notations on the variations of tension from time to time in an individual case than with the mere fact of an average hyper- or hypo-tension in the given disease, that we derive the greatest benefit from these pressure records.

Their prognostic and diagnostic value are shown in many conditions of falling pressure, whether of mechanical, toxic or nervous origin; in case of hemorrhage or when there has been a great depletion of fluids due to persistent vomiting or diarrhea; when during the course of acute or prolonged fevers evidence of cardiac failure is beginning to

³ Elmer and Amend of 205 8d Avenue, New York, have made for Dr. Cook and put upon the market a serviceable form of the Riva-Rocci apparatus. An equally useful instrument can be easily home made, provided the rubber armlet is secured from some source. Dr. Orle tells me that he has used a small standardized aneroid barometer inserted in place of the mercury manometer in an instrument of the Riva-Rocci pattern. This brings the instrument into still closer structural relationship with the Hill and Barnard apparatus.

show itself⁴; when there is existent or impending shock or collapse. Similarly useful are records in cases in which the reverse takes place, namely, a progressive rise in tension, such as occurs in some acute intracranial processes and in states of renal insufficiency.

Their therapeutic value is perhaps even more apparent as one is enabled to accurately estimate not only the degree of stimulant or depressant effect which a given procedure or drug may have upon the cardiac activity, but also to follow the duration of its action. In no other way is it possible for us to learn the actual therapeutic results of stimulation; to appreciate, for instance, the inadequacy of saline infusions as a means of raising blood pressure; to learn the uses and limitations of alcohol, strychnia, digitalin and nitroglycerin; to study the effects of that remarkable substance, adrenalin, which may possibly become of therapeutic value in cases of profound shock.

I think that Dr. Cook has been the first to put to any practical application the principle of stimulation in accordance with blood-pressure records. During a summer service among numerous cases of cholera infantum he found it practicable to leave orders for stimulants of one sort or another, to be administered in accordance with the blood-pressure observations, which the nurse herself regularly made on the cases that were seriously ill. Thus, without waiting for the personal advice of the attendant, oftentimes occasioning serious delay, on a fall of blood pressure to a certain subnormal level, a saline infusion or a given dose of digitaline was to be administered, to be followed, if the pressure did not shortly return to and remain at a safe level, by a certain amount of strychnia, for example. The advantages of such a routine are quickly apparent, and orders for stimulants may thus be left with the same definiteness as are the directions for a bath in case the pyrexia of typhoid fever exceeds a certain degree of temperature. Similarly, when a depressant effect of drugs is desired to alleviate symptoms associated with hypertension, treatment may receive its indication from something more definite than the mere palpation of pulse tension.

The beneficial effect of rest treatment for those nervous disorders which are associated with a high tension can be best appreciated by accompanying blood-pressure observations. An illustration, also, of what recumbency can do for the high tension of arterial sclerosis is shown by this chart, which Dr. McCrae has privileged me to show you. It represents the blood-pressure record of a patient who entered Dr. Osler's service a few months ago with an aortic aneurism and a general arteriosclerosis of an advanced degree, associated with the usual vascular hypertension. Under a rigid Tufnell treatment the blood pressure, as can be seen, has fallen from its previous great height to a level considerably below normal, where, averaging between 95 and 110, it has remained for the past two months. It is evident that the pulse rate, although considerably diminished, has not been affected by the treatment in so striking a way. It can be readily understood

that a diminution in the vigor of the cardiac contraction is of even greater importance in this form of treatment than the lessening of the number of pulsations, and by means of control observations on blood pressure in this particular case, after a level of hypotension had once been reached, it was found possible to make concessions to the patient and to relieve him in a measure from the severe regulations of the treatment, according as it was found that their withdrawal had but a slight and transient influence in increasing the arterial tension.

There are many operative procedures, also, which fall to the lot of a physician, such as the aspiration of effusions of one sort or another from the serous cavities, the occasional accidents associated with which may be avoided by concomitant registrations of blood pressure. Thus the well-known fall in pressure which follows the withdrawal of a large amount of fluid from the abdomen may be recognized before a dangerous level of pressure has been reached. So, also, the abstraction of blood in cases of hypertension associated with various maladies may be definitely regulated and the therapeutic effect of the procedure best appreciated by an accurate numerical estimation of tension during venesection.

In the surgical operating room procedures which tend to upset in any way the cardio-vascular apparatus, whether directly by loss of blood, or indirectly through insults to its nervous mechanism, will be recorded with fidelity, and if harmful their continuance or repetition avoided. As stated elsewhere, I feel assured that by placing reliance on the blood-pressure charts kept during critical operations in the past year, it has been possible to anticipate and ward off severe conditions of surgical shock, and indeed in some instances to save lives. A great number of blood-pressure reactions known to the physiologist as occurring in animal experimentation it has been possible to demonstrate on man with some degree of conformity. The general tendency of a rise in blood pressure during ether administration and the frequent fall during chloroform anesthesia show graphically the danger of narcosis induced by the latter drug. Chloroform is commonly advocated as the anesthesia of choice in intracranial operations, on the ground that its use is associated with less likelihood of hemorrhage. The fall in blood pressure explains this diminished tendency to bleed, and at the same time points out the danger of the drug. A sorry experience has led me to abandon chloroform for this reason in craniotomies, as well as in other operations. In a similar way comparative observations on blood pressure might enable us to determine the less dangerous of two or more methods of operating, when different procedures to accomplish the same end are advocated by schools or individuals.

All things considered, operations conducted under painstaking hemostasis, even though performances of great magnitude and requiring long manipulation, as the complete Halsted operation for carcinoma of the breast, may be unassociated with alterations in arterial tension. If, however, many or large nerve trunks are encountered or require handling during operations, marked variations may be occasioned. These are dependent upon the reflex effects of afferent sensory impulses, and it

⁴Certain recent experimental observations from Curschmann's clinic tend to show that the circulatory disturbance in acute infectious diseases is brought about by a peripheral vasomotor breakdown rather than from cardiac failure. Pässler und Rolly, Münch. Med. Woch., 1902, October, p. 1787.

has been seen on certain occasions that during recovery from anesthesia, and some time after the completion of a severe operation, which apparently had been unassociated with evidences of shock, that there may be a reflex fall in pressure of considerable degree, occasioned by the pains and discomforts which are felt during the restless period of returning consciousness. The weak pulse seen under these conditions, according to our charts, receives its best stimulant from small doses of morphia, which are quieting, prevent restlessness, and so check the inflowing sensory impulses.

In further conformity with experimental observations one sees that traumatism of sensory nerves when an individual is in normal condition will be accompanied by a rise in blood pressure. This reflex rise is especially well marked during such operative procedures as the stretching of a nerve for neuritis or the forcible dilatation of the anus for the treatment of fissure or preparatory to a hemorrhoid operation. When one sees recorded the great rise of pressure which may occur under these circumstances, the occasional hemiplegia which has been known to follow supposedly simple operations of this sort need be no cause for wonderment. In case of fatigue or exhaustion of the nervous system from repeated stimuli, instead of this normal rise, a fall will occur, and in case the pressure is already low, as in conditions of traumatic shock, this additional depressor response may be sufficient to insure a fatal outcome. The value of blocking nerves by the injection of cocaine in prevention of such reflex disturbances has been emphasized heretofore by Dr. Crile and myself.

In operations upon the central nervous system, perhaps more than in any others, are blood-pressure observations of great value. The reactions which occur as a normal response to varying degrees of intracranial pressure may suffice not only to serve as a timely warning of the necessity of operative interference, but may also show during those surgical procedures which necessitate compression or elevation of a portion of the brain, the extent to which the process may safely be carried. In spinal surgery, especially in operations carried out in the upper part of the cord, shock may play such an important part in the reactions that the warnings gained by pressure records are of great use. In cases of transverse lesions of the spine, the few records I have had the opportunity to make have tended to show that there is an early elevation of tension in low segmental lesions, a lowering of the same in high lesions. This would be expected, since in the former case the splanchnic nerves presumably are stimulated, while in the latter case they are cut off from their central connections with a consequent loss of control over the great vascular territory of the abdomen. The great fall in pressure which often follows the subarachnoid injection of cocaine would be enough to deter any one who has made blood-pressure observations on these cases from employing this much-discussed method of anesthesia. It is not impossible that the shock commonly seen in these cases is due to an intraspinal paralysis of the vasomotor nerves controlling the splanchnic territory rather than to the general toxic effect of the drug which has reached the general circulation.

In abdominal surgery there is a great field for observations on pressure, owing to the importance of this same splanchnic vascular territory. The removal of large abdominal tumors by a resultant flooding of the vessels may seriously affect the heart on "*die leere Pumpe*" principle of Goltz. Evisceration or extensive intra-abdominal manipulations, especially when conducted in the upper quadrants, may produce a rapid fall in pressure, whether reflexly, by sensory stimuli coming from the parietal peritoneum, or in consequence of the direct insult to the vasomotor terminals, and only by pressure observations at the time can the extent of vascular disturbance be appreciated and so possibly checked before irremediable shock has been occasioned.

Further illustrations without number might be cited. What has already been said may suffice to show that in most of the departments of clinical work, whether devoted to internal medicine itself or surgery or neurology or obstetrics or psychiatry, etc., will these routine observations be found of practical utility in diagnosis, prognosis and therapy.⁵

Afterword.—There is one word I should like to say in conclusion, and before leaving this clinico-physiological subject.

For reasons that possibly are not far to seek there seems to have taken place during the past few decades a gradual withdrawal of interest on the part of the clinician from his quondam interest in research along the lines of experimental physiology. Clinical medicine has offered an arm to pathology and her handmaid bacteriology, and the old companion is passed by for the most part unnoticed. Morbid anatomy is courted on every hand; morbid physiology is but little heeded. To the student, from my own recollection, this is especially evident, and although there may and must be a lingering memory of physiological principles which clings to his mind, there is little if anything said or done in most schools during his period of bedside instruction to point out the physiological effects of processes of disease, much less to stimulate him with any personal keenness for the pursuit of knowledge along the physiological highway. Few medical teachers like Sahli, whose clinico-physiological course is one of the most widely attended exercises in Berne, or like Krehl, whose textbook on "*Pathologische Physiologie*" is probably well-known to many of you, make a systematic effort to emphasize the physiological background of the clinical picture. Few surgeons to-day, like Kocher, Horsley and Dr. Crile, have devoted themselves extensively to the solution of clinical problems by adopting methods of physiological research. Would it not be well if what is done for the student during his clinical years in the way of instruction in morbid anatomy, and encouragement toward original work in this department of "general pathology," could with equal thoroughness be done for morbid physiology?

Although seemingly but a small factor in this direction, if the introduction of some method of instrumental estimation of blood-pressure changes in clinical cases does nothing other than serve to

⁵ A lantern-slide demonstration was given of numerous plotted blood-pressure records, illustrating the reactions of many operative procedures of therapeutic measures and of conditions of disease. A single example accompanies this article.

keep the student's mind alive to the physiological principles of the circulation and to make clinical observations on the cardio-vascular apparatus more nearly in accord with his earlier experiences in the physiological laboratory, its routine use needs no greater justification.

CYTO-DIAGNOSIS: A STUDY OF THE CELLULAR ELEMENTS IN SEROUS EFFUSIONS. A PRELIMINARY REPORT.

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SINCE 1882 the investigation of cellular elements in serous fluids has been carried on by various observers, namely, Erlich, Quincke and others, but to Widal and his pupil Ravaut we are indebted for the knowledge gained by the systematic study of the cells in these effusions. The earlier observers aimed their investigation chiefly at the diagnosis of malignant disease, but Widal studied all the cells and their relative proportions, in order to determine the cause of effusions from serous membranes. Since Widal's original article in 1900, many observers in France have contributed to the literature of this subject. In this paper the writer will confine himself, however, to a consideration of the cellular elements found in pleural effusions.

The technique.—The technique divides itself into three operations; namely, (1) obtaining the liquid, (2) obtaining the sediment, and (3) finally making preparations and staining the sediment. Of the first it is not necessary to speak, as the ordinary methods of paracentesis commonly employed are sufficient.

To obtain the sediment, the liquid is placed in the ordinary centrifuge tubes, and centrifuged at about 2,500 to 3,000 revolutions per minute, for three to five minutes. The tubes can then be inverted, and the liquid poured off without disturbing the sediment, which is usually firmly packed at the bottom of the tube and more or less adherent. The few drops of fluid then remaining are stirred with a platinum wire, in order that a homogeneous mixture may result and the cells in the sediment be uniformly distributed throughout the small amount of liquid. This mixture is then spread on thoroughly clean cover slips by means of the platinum loop. The spreading should be done by moving the loop in constantly enlarging circles from the center outward, in order to get a uniform spread. Spreading a drop between two cover slips, as practised with blood, is not advisable, because the cellular elements are dragged to the outer edges of the preparation, and also, on account of the friability of the cells, they are apt to be more or less altered in shape and broken up.

The above procedure is entirely sufficient for making a good preparation from fluids immediately after withdrawal from the body, but, if the fluid has stood any length of time, coagulation will sometimes embarrass the operator. If coagulation has begun, the fibrinous clot will entangle many of the cellular elements, especially the polynuclear leucocytes. The simplest procedure to avoid the above difficulty is to defibrinate by shaking with small glass beads for from five to ten minutes.

This causes the clot to contract, squeezing out the entangled cellular elements, and the clot itself, if not already more or less firm, will be broken up into very small particles. It is then necessary to let the liquid stand for a few moments, until most of the fibrin, at least the larger masses, have settled, and then to decant and centrifuge as before. It is therefore obvious that the sooner the liquid is centrifuged, the easier it will be to make clean preparations. However, a fair idea of the different proportions of the cells may be obtained even as long as twenty-four hours after the withdrawal of the fluid, if it has been gathered aseptically in sterilized receptacles.

The cover-slip preparations already described should not be heated in order to dry them, as this causes contraction of the film and more or less distortion of the elements, often quite well marked in cases dried at too high a temperature. These cover-slip preparations can be stained, as Widal has described, with hematoxylin and eosin, or preferably, as the writer believes, with Leichman's blood stain. If hematoxylin and eosin are used, fixation is first necessary, with equal parts of alcohol and ether. Erlich's triple stain has also been used, but the heating necessary to obtain the best results by this method alters the size and shape of the cells, and also makes a preparation which is rather difficult to decolorize properly. Wet preparations can be made in the usual way, by placing a drop between slide and cover slip. Both forms of preparations should be examined with an oil immersion lens.

Enumeration of the cellular elements per cubic millimeter has also been practiced, but is of doubtful value.

Descos, in an exhaustive article on the subject in the *Revue de Médecin* for September and October, 1902, has reviewed the work up to that date, and, following the lines laid down by Widal and other observers, has been able to give us a certain number of what he calls cystologic formulæ.

In making up these formulæ we have to consider, in the first place, the red blood corpuscles, which exist in almost all fluids, from those that are almost purely serous to those which may be regarded as hemorrhagic.

Second, the white corpuscles, the relative enumeration of which is the essential part of cystology, are found in varying numbers. All the forms of white corpuscles, with the exception of myelocytes, have been observed in serous fluids. The polynuclears do not ordinarily present any differences from those found in blood, except that they are usually smaller in size, and with Leichman's stain have the same appearances. Of the polynuclear leucocytes, we find neutrophiles, eosinophiles and mast cells. Any of these varieties may be more or less altered, depending upon the age of the fluid and the producing cause. Both varieties of mononuclear leucocytes occur. The large mononuclear cells are at times difficult to distinguish from the endothelial cells about to be described.

Third, the endothelial cells are desquamative elements, cast off from the serous surfaces. Their relative size is usually enormous as compared with the other elements found. These cells may occur

isolated or in groups of two or more. Isolated, they are of variable size, and in general their nucleus is round or oblong. Their protoplasm stains a lighter shade, their general contour is nearly always circular. Less frequently, they form in large sheets, especially in the mechanical variety of effusions. It is difficult to make out the outlines of the individual cell walls when they occur in groups. The endothelial cells are the first elements in the fluid to undergo changes on standing. Sometimes the protoplasm becomes disintegrated and ragged, leaving only a small part of the original protoplasm surrounding the circular nucleus, and in this case they are very difficult to distinguish from the large mononuclear leucocytes. Again, large swollen, often more or less vacuolated, diffusely staining cells with degenerated nuclei, occur. At times two or three nuclei may be seen in what appears to be the same cell, and also hour-glass-shaped cells are encountered.

Fourth, in some cases the so-called cancerous cells have been described as larger even than the endothelial cells, occurring singly or in groups of two or three, and with protoplasm studded with vacuoles, which, when studied in the fresh specimen, appear as numerous refractile granules. The nucleus is large, often showing karyokinetic figures. These cells are also said by Erlich to contain a certain number of glycogen granules, which may be stained with iodine.

From a study of the relative proportions of the above-mentioned cells in various serous fluids, Widal and Ravaut have formulated the following general laws: (1) Lymphocytosis is characteristic of tuberculous pleuritis; (2) polynucleosis is characteristic of acute infectious pleuritis; (3) large numbers of endothelial cells are characteristic of mechanical pleuritis.

The same authors classify pleuritis under the following general headings: Tuberculous pleuritis, acute inflammatory pleuritis and the so-called mechanical pleuritis, and, fourth, cancerous pleuritis and a pleuritis of so far unknown etiology, namely, eosinophilic pleuritis.

Tuberculous pleuritis.—These are divided into primary tuberculous pleuritis, a form which is supposed to start in the pleura itself, and not by extension from a previously existing tuberculous focus in the lung; and secondary pleuritis, caused by direct extension of the tuberculous process from the lung tissue. These fluids differ considerably in regard to the number of polynuclear leucocytes found. In the primary form, we have a large predominance of lymphocytes, varying from 65 to 100%, except at the onset, when for from five days to a week the polynuclear varieties may predominate, but as the disease progresses, there is a constantly increasing ratio of lymphocytes and a diminishing ratio of polynuclear cells. After a duration of three weeks, the character of the fluid, as regards the relative proportion of leucocytes, is said to remain practically constant. In the secondary form, in which the diagnosis is usually less important, as the more or less evident signs in the lung usually give us a clue to the etiology of the effusion, the cells are often irregular, ragged, vacuolated and filled with refractile granules, and it is difficult to distinguish between the different cellu-

lar elements in the stained specimens. The lymphocytes may be more or less altered and necrotic as well as the other cells, but usually preserve their characteristic properties to a greater degree. The enumeration of the different variety of cells in these cases is difficult, but the different appearance of the preparation, as described above, is characteristic of this variety. The same formula is found in hydro-pneumothorax. It is possible that these characteristic differences may be accounted for by the probability that we have a mixed infection by means of more or less remote communication with the bronchus. Despite the above-described changes, the lymphocytes usually predominate.

Acute infectious pleuritis are characterized, in general, by the relatively large number of polymorphonuclear elements. Widal and Ravaut report a case of streptococcus pleuritis in which the polynuclear elements alone were present. These cells showed deformed nuclei, streptococci were scattered between the cellular elements, and also included in their protoplasm. Cultures showed pure streptococcus.

Pneumococcus pleuritis is characterized by the predominance of polynuclears, with a greater or lesser number of large mononuclear cells, some of which present the appearances of phagocytes, encircling the polynuclears in their protoplasm. Small numbers of lymphocytes and endothelial cells are also encountered, as well as the red blood corpuscles in varying numbers. In seven cases, the above observers were unable to find pneumococci in the cover-slip preparations, nor were Troisier and Netter able to find them in six cases which came under their observation.

A study of the pleural effusions of typhoid etiology have not so far shown a constant formula, but have been characterized in general by a large relative proportion of large mononuclear cells, and also the presence of numerous eosinophiles has been noted.

Mechanical pleuritis are characterized by the presence of numerous large endothelial cells, which have been described before, often occurring in groups or sheets of three or four elements or more. Early in the course of the effusion these sheets are often extremely abundant, and are occasionally of such size as almost to cover the microscopic field. Later the number of these cells diminish, and among them are scattered a variable number of lymphocytes. Late in the course of the effusion they undergo various degenerative changes, which have been spoken of before, and normal endothelial cells will often be found mixed with these old and more or less degenerated forms.

Eosinophilic pleuritis.—Eosinophiles were found in three of 43 tubercular cases reported by Bajon and Cade. Their presence has been spoken of above in typhoid pleuritis. They have also been found in pleuritis due to malignant disease. It does not seem, therefore, that this should be classed as a separate variety of pleuritis, but rather the interesting fact noted that in serous effusions of differing etiology these cells may occur, and in all the hitherto reported cases where the blood has been studied no increase in the number of eosinophiles has been found. The percentage of eosinophiles found in cases which can be spoken of as eosinophilic

pleurisy has varied from 14 to 54%. In the three cases reported by Vidal, the liquid, when inoculated into guinea pigs, showed an unusual toxicity, as all the pigs inoculated died within twenty-four hours of a fibrinous peritonitis, from which no bacteria could be obtained.

The data from which the previously described formulæ have been compiled have been taken from cases in which clinical, bacteriological, inoculation or postmortem methods of diagnosis have been used. Postmortem results have been made use of wherever possible, and in Bajon and Cade's cases, previously mentioned, 25 of the 43 cases reported came to autopsy.

The following cases are reported by the writer:

CASE I. Lizzie E., twenty-six, single, occupation housework. Clinical Diagnosis; Hodgkins' disease. Pleurisy with effusion. Family history, cancer. One brother died of "decline."

Previous history and present illness: Two years ago was treated in the Out-patient Department of the Massachusetts General Hospital for eleven weeks, and was then sent to Rutland, where she remained eighteen months, and where the diagnosis of incipient tuberculosis of the left apex was made. Seventeen months ago was operated on at the Worcester Hospital for removal of glands of the neck, and eight months later was operated on the second time, at the same place, for the same cause. Cough and dyspnea were the only important symptoms. Six weeks previous to entrance on the medical service at the Massachusetts General Hospital, she was operated on at the same institution for removal of glands of the neck, the pathological examination of which showed Hodgkins' disease. Patient entered the medical service on Feb. 3rd, and the symptoms at that time were dyspnea on slight exertion, fainting spell the day before entrance, considerable cough and thick, yellow expectoration. Temperature showed marked irregularity, ranging between 99° and 102° during the day, once reaching 103° in the afternoon.

Physical examination showed normal heart in normal position. Examination of the lungs revealed squeaking, coarse, moist râles over both lungs, with signs of pleuritic effusions at the right base. Patient had previously been tapped twice on the surgical side, and was tapped again on the medical side on Feb. 4th. The blood count showed 16,000 whites. The differential count showed 84% polynuclears, 12½% lymphocytes and 1% eosinophiles. The condition has remained practically the same, and the patient is still in the hospital.

Fluid, Jan. 2, straw colored; albumen, 2½%; specific gravity, 1.020. *Centrifuged sediment* four hours after tapping, count of 1,000 cells. Polynuclears, 18½%; lymphocytes, 64.7%; eosinophiles, 14.7%; rare large endothelial cells and a little blood. On Feb. 4, 44 oz. of straw-colored fluid. Specific gravity of 1.020. Albumen, 2½%. *Centrifuged sediment* immediately after tapping. Lymphocytes, 90%; Polymorphonuclears, 5%; Large Mononuclears, 3%; Eosinophiles, 3%; a little blood, rare large endothelial cells, and rare mast cells were found. While in the Worcester Hospital this patient showed marked tuberculin reaction. The fluid is that of a tubercular effusion. Sputum, no tubercular bacilli found.

CASE II. M. O'M., twenty-six, single. Examined Jan. 2, 1903, by Dr. Tileston. Family history, markedly tubercular. Previous history, negative. Present illness, For two or three months subject to cough, and for last month has had night sweats. Three weeks previous to examination had pain in the left chest, without dyspnea or palpitation. Patient not intelligent, and unable to give accurate history.

Physical examination.—Phthisical habit. Poorly nourished. Flat thorax. Feverish. Signs of left pleural effusion. Right lung negative, heart dislocated to the right. Jan. 4, two quarts of serum withdrawn, after which heart resumed normal position. Fairly rapid

convalescence. Jan. 17, no return of fluid. Showed signs of thickened pleura.

Fluid, straw-colored; specific gravity, 1.022; albumen, 2½%. *Centrifuged sediment* three hours after tapping showed lymphocytes exclusively, occurring singly and in clumps. Clinical Diagnosis; tubercular effusion. Diagnosis from fluid, tubercular.

CASE III. O'C., teamster, forty-six, married. Entered medical service of Massachusetts General Hospital, Jan. 10. Family history, good. Previous history, negative. Present illness, pain in side for five weeks, night sweats for same time, with a loss of fifty-two pounds in weight. Dyspnea compelled cessation of work ten days previous to entrance. Had been up and about up to the time he entered the hospital. Temperature averaged 99 to 101½° F.

Physical examination.—Lungs, signs of left pleural effusion filling the chest, no signs of disease of the lungs. Heart, dislocated to the right. Blood, 6,800 and 9,600 whites. Sputum contained no tubercle bacilli. Patient was tapped on Jan. 10 and Jan. 16, and was discharged much relieved on Feb. 4.

Fluid, Jan. 10, straw-colored; specific gravity, 1.020; albumen, 1½%. *Centrifuged sediment* immediately after tapping, lymphocytes, 96%; polymorphonuclears, 3%; large mononuclears, 2%. Occasional large endothelial cells.

Fluid, Jan. 16, specific gravity, 1.020; albumen, 2.2%. *Centrifuged sediment* two hours after tapping, almost exclusively lymphocytes. Many lymphocytes in large and small clumps, very rare polymorphonuclears. Occasional large mononuclear, rare endothelial cell. Diagnosis from fluid, tubercular pleurisy.

CASE IV. B., thirty, married, teamster. Diagnosis, hydro-pneumothorax. Family history, negative. Previous history, doubtful specific disease. Habits, alcohol in excess. Present illness, slight cough without expectation, no other symptoms since latter part of last winter. Entered Massachusetts General Hospital Jan. 21, 1903. Last July strained himself lifting heavy object, and immediately had fit of coughing, during which he raised about a pint of blood. He kept at work, however, but the cough has increased since that time. Slight white expectoration, but no hemoptysis. Has had night sweats. Since November cough has increased, and has had extreme dyspnea while lying on the left side. Has not worked since Thanksgiving. Cough and dyspnea prominent symptoms at entrance.

Physical examination.—Maximum temperature 100° F., below that most of the time. Signs of hydro-pneumothorax in right chest, namely swashing, shifting dullness and tympany. Left lung negative, except for fine râles at base. Heart displaced to the left. Blood, 7,600 whites. Sputum, no tubercle bacilli found.

Jan. 25 was discharged, with symptoms relieved and with signs of hydro-pneumothorax persisting.

Was tapped on Jan. 22. Fluid, 46 oz., straw-colored; specific gravity, 1.022; albumen, 2%. *Centrifuged sediment*, two hours after tapping. Most of cells more or less broken up and staining badly. Neutrophils seemed to predominate, but there was a large percentage of lymphocytes. On account of the ragged and broken up condition of the cells, the differential count was very difficult. Occasionally a large endothelial cell. Examination for tubercle bacilli negative.

CASE V. G., forty-six, widower, worked in factory. Diagnosis; Mitral and aortic regurgitation. Family history, negative. Previous history, negative. Present illness, entered Massachusetts General Hospital, Jan. 20. Precordial distress for three months. Swelling of feet for one week. Has been unable to work for two weeks on account of dyspnea on slight exertion. Has lost five pounds in three months.

Physical examination.—Temperature subnormal throughout. Heart enlarged, and signs of mitral and aortic regurgitation. Lungs, moderate pleural effusion, right base. Left lung negative. Abdomen, slight ascites. Legs, edematous.

Blood, 7,600. Patient had no expectoration. Patient was tapped on Jan. 22. On Jan. 25 patient contracted

gonorrheal ophthalmia, and was transferred to the Eye and Ear Infirmary, where he died the following day of a postorbital abscess. No autopsy was obtained.

Fluid, .42 oz.; specific gravity, 1.011; albumen, 2%.

Centrifuged sediment, one hour after tapping. Many endothelial cells, mixed with lymphocytes. Rare neutrophils and eosinophiles. Endothelial cells occur in sheets of two or three, and sometimes four or five cells are seen joined together. These cells show sharply defined and round nuclei with an occasional occurrence of two or three nuclei in the same cell. Three slides examined for Tubercle Bacilli were negative. Diagnosis from fluid, Mechanical exudate.

CASE VI. G. H., colored, twenty-three single, porter. Entered Massachusetts General Hospital, Feb. 7, 1903. Family and previous history are negative. Present illness, gradual onset of cough, malaise and anorexia, three weeks before entrance. Was able to work for one week after symptoms were first noted, and was able to be about the house for a week following. One week before entrance complained of dyspnea, and first noticed a whitish expectoration.

Examination.—Temperature ranging between 99 and 102° F. on the average, rising in the afternoon. Heart in normal position, signs of left pleural effusion. Right lung negative. Blood, 6,400 whites. Sputum, no tubercle bacilli found. Was tapped on Feb. 7th. Fluid, slightly turbid. Straw-colored. Amount, 44 oz. Specific gravity, 1.020. Albumen, 3.2%. *Centrifuged sediment* immediately after tapping. Lymphocytes, 87%. Polynuclears, 12%. Large mononuclears, 1%. Eosinophiles, 0%. Considerable number of red corpuscles. No endothelial cells found. Diagnosis from fluid; Tubercular pleurisy.

Although the writer realizes that there is no absolute scientific proof that these cases were due to the causes which the examination of the fluid would indicate, still the histories show a decided clinical probability. In making up the data from the examinations of sediments in all the cases, at least three, and on the average five or six, slides were examined, and in some of the wet preparations as well, before any conclusions were drawn. In Case IV examination of the sediment was absolutely typical of hydro-pneumothorax, as can be seen by referring to the formula for this condition, as described by Widal and previously mentioned in this article.

In conclusion, the writer can state without hesitation that the descriptions given by Widal, and other before-mentioned observers, have been accurate, as far as his limited observation has gone; not only from observations made on the reported cases, but from several preparations made from abdominal fluids, which we do not care to speak of in this paper. The writer believes this procedure will be found of clinical value after a more thorough observation and study. If it is found that the cystologic formulæ are accurate after careful control of the cases studied, it is plain that the immediate results which can be obtained by this method, and which the French observers claim are more accurate than any clinical method now practiced, will be of much value in diagnosis as well as prognosis.

The writer wishes to express his thanks to Drs. F. C. Shattuck and R. H. Fitz for their kind permission in allowing him to report five of the cases, and to Dr. Tileston for the sixth. He also wishes to thank the house officers of the Massachusetts General Hospital for their kindness in promptly notifying him when cases were tapped, and other material help rendered. Thanks are also due to Dr. J. H. Wright for valuable suggestions.

INTESTINAL OBSTRUCTION BELOW THE ILEO-CECAL JUNCTION.¹

BY THOMAS H. MANLEY, PH.D., M.D., NEW YORK.

(Concluded from No. 9, page 239.)

OPERATIVE TREATMENT: ARTIFICIAL ANUS, RESECTION, ANASTOMOSIS.

THE basic principles of the operative treatment of stenosis of the large intestine, and for other tubular lesions, has undergone remarkable changes of late years; nevertheless in advanced cases when stercoræmia exists, when the patient is starved to emaciation, and when he is quite worn out by pain and loss of rest, and is in a settled despondency, all operative intervention has a harrowing mortality.

Artificial anus in former times was the only relief possible for all these unfortunate cases; it has and always will hold a position of prime importance as a last resort and a relief measure, but it leaves a loathsome condition. There is commonly a tendency to closure of the fistula or a prolapse of the intestine outward.

In malignant disease of the large bowel, or that type which restricts us to tapping the colon, the site of the artificial anus is determined by the location of the disease; if in the rectum or sigmoid, the descending colon is chosen; if in the ascending or transverse colon, the ascending segment; if the cecum or first part of the ascending colon, the gut is drained direct from the site of blockage.

Fortunately in a considerable proportion of cases of annular scirrhus of the colon, the disease is strictly limited to the wall and has not spread through the lymphatics to neighboring structures; at the point narrowed the gut looks as though reduced by a hard circular cicatrix, much like an artery ligatured in continuity, the mucosum, the cellular and muscular layers have been quite totally destroyed, and little more than a hard knot of cartilaginous consistence remains. But there are several other pathological conditions leading to intestinal stenosis which are not malignant. For some of these and annular scirrhus, resection and anastomosis have come to supplant the antiquated procedure of artificial anus; and, for many varieties of cancer not permitting of excision, we now resort to side tracking, or exclusion by anastomosis.

Spontaneous anastomosis.—By observing the unaided efforts of nature to relieve herself in this class of cases, we may gather a few very significant hints, and we may imitate her modes of effecting relief with the most signal benefit.

We find scattered through records on pathology, through revelations on autopsy, as well as illustrative instances on the living body, examples which point the way to effective relief in intestinal obstruction by an automatic mechanism, devices by which fecal blocking is overcome and the continuity of the bowel restored by adhesions and a free opening of one hollow viscus into another. The following are a few illustrative examples: Treves saw an instance of the jejunum opening into the transverse colon; Bland Sutton, another of what he terms "an accidental anastomosis"; Guyon, one of the ileum and the transverse colon; Boas, one of a similar character; Hausmann, two ileocecal anas-

¹ Read before the Hartford Medical Society, Hartford, Conn., Dec. 22, 1902.

tomoses; Lacroze, four cases, fibrous bridges reinforced two. I have seen two instances myself in which the imprisoned feces of the colon by adhesions had established vicarious channels for escape—one of stricture of the splenic end of the colon, the cardiac end of the stomach being opened; in the other, an old physician, the bladder was opened. Talma's case belonged to this class, as well as one from Dr. Reeve's group.

Anastomosis, transplantation or carrying the loop of gut from the afferent end of the stenotic part to some point beyond, jointing it with the free coil of the sigmoid, or rather bringing the divided ileum over and anastomosing it at once with the sigmoid, is the ideal procedure; it relieves all strain and gives a free outlet to the excretory elements by a route entirely under control. It is true that this procedure quite completely excludes any digestive action on the part of the large intestine and leaves the local lesion untouched. Theoretically viewed, we can conceive many objections to this mode of short circuiting an overdistended crippled colon, but when we recall that it is utilized mostly in malignant disease as a substitute for artificial anus, it becomes a most acceptable substitute. Hennequin anastomosed the ileum with the sigmoid for inoperable cancer in a military officer. Immediate relief followed, with full recovery of health later.

Resection with anastomosis in stenosis of the colon has, of late years, become a well-established operation. Terrier has successfully removed the cecum, the ascending colon and the proximal half of the transverse colon for a cancerous growth, bringing up the ileum and anastomosing it with the remaining loop of the colon; the following day there was free movement *per anum*. The patient left the hospital on the thirty-seventh day after operation, having gained 4 kgr. In the medical literature of America and Europe, a large number of similar operations are recorded, and from year to year this number is growing, the ratio of successes steadily augmenting. One surgeon of large experience says that in the last quarter of a century the mortality in operations on the large intestine has been lowered from 50% to 20%. Bennett, however, writing in 1887, denied that "up to that time resection of the bowel could boast of but few successes"; but since that date no single division of operative surgery has achieved more notable triumphs, though fifteen years ago it was little more than in its experimental stages. Tierlink observes that "surgery alone can deal with tumors or stenosis of the sigmoid."

THE COMPARATIVE SEVERITY AND DANGERS OF VARIOUS SURGICAL PROCEDURES FOR ORGANIC STENOSIS OF THE LARGE INTESTINE.

The dangers attending the various modes of surgical intervention for the relief or cure of occlusion of the colon are influenced:—

- (1) By the pathological character of the lesion and its situation.
- (2) By the age, sex and the general condition of the patient.
- (3) By the mode of operative relief.

With few exceptions cases of organic stenosis

of the colon constitute a very undesirable class for major operations. This is notably true of malignant disease and the male sex, wherein this type of intestinal lesion most frequently occurs; rarely are these cases handed over to surgery till exhaustion is advanced, but little vital resistance remaining, and hence, from the shock of operative intervention, but very few survive. It is proverbial that the male subject is less tolerant of intraperitoneal exposure and manipulation than the female, and therefore the reason why the drastic resources of surgery are viewed askance, as a *dernier ressort* of questionable utility, here. But, very large as the mortality is, up to the present, for extreme cases, it is no larger than obtained after celiotomy for strangulated hernia twenty-five years ago, when the aid of surgery was seldom invoked until gangrene had set in, or the patient was in mortal collapse.

In internal as well as external strangulation of the intestine, the only hope of anything like satisfactory and effective results is by early intervention.

Rectal cancer.—Crook remarks that "there are no distinctive symptoms of cancer of the rectum, but diagnostic uncertainty is inexcusable—its early symptoms do not differ from the ever-popular piles."

This view is in the main correct, but it applies only to the advanced stages of the disease, and when it is located in the lower portion of the rectum.

It is true enough that piles may mimic quite every phase of malignant disease, and also be present when stricture of the gut co-exists, but there is one symptom in stricture never present in uncomplicated piles, "the fecal drip." A young woman came to my notice three years ago who had a cluster of piles excised in a private hospital, but her misery was greater after than before.

I found the rectum in its middle third stuffed full of cancer vegetations; and now she had the piles again, or rather a large eversion of the verge from powerful straining.

It is imperative, therefore, in every case of hemorrhoids, to pass the well-oiled finger high up the rectum that we may exclude a new growth or stricture before we deal with these in the way of treatment; as in many cases their presence is only symptomatic of other deep-seated or more serious trouble.

Sexual distinctions are important to remember. In colic obstruction, timely and judicious surgery should have a low percentage, inasmuch as the system still possesses active recuperative energy.

Artificial anus in intestinal obstruction is now regarded in essentially the same light as of an amputation of a limb; namely, an opprobrium of surgery. It is true we do not sacrifice the intestine, but by an enterostomy, we either temporarily place in abeyance one of the most important functions of the large bowel or destroy it; nevertheless, of all operative procedures for the relief of fecal impediment, from organic stenosis, an enterostomy is the simplest and safest. In several instances, we have no other choice. The ascending or descending colon are the safest sites to tap for artificial fecal evacuation, as the peritoneum is not opened. Because of its long free loop, its easy accessibility and adaptability,

sigmoidostomy or Maydl's operation is the most satisfactory for a free vent when the rectum is obstructed. Enterostomy may be utilized with advantage as a preliminary measure in certain cases where it is desirable to drain well an overdistended colon, and permit our patient to regain his strength before submitting him to the more formidable procedure of resection or anastomosis.

Resection and simultaneous anastomosis is the ideal procedure when the condition of the patient and the character of the lesion justify it, for the reason that we simultaneously remove the neoplasm or diseased segment of the bowel and re-establish its continuity at one operation. Of this procedure I can speak with confidence of its facility and infinite value from personal experience in gangrenous hernia, but in only two cases have I had an opportunity to employ it in the large intestine for a malignant growth.

One patient had a cancerous stricture about six inches above the peritoneal reflection of the rectum. Fecal stasis had so elongated the sigmoid loop that it measured about 20 inches in length; it rose well above the pubis, swinging over and resting upon the cecum.

I was enabled to locate the point of stricture very well before operation. Patient had never had vomiting nor passed any blood-stained feces, but was literally starved for fear of increasing the distention, and he only yielded to operation as obstruction was becoming more and more complete, and he became conscious of a steady loss of strength.

It was my original purpose to only tap and drain the colon, and later anastomose, but when the sigmoid was reached and it was found that the annular narrowed strictured part was readily accessible, I prepared for its clean excision with an immediate anastomosis. Having ligated an ample area of the mesentery, with the bowel well lifted out and the peritoneal cavity well protected, a cut was made three inches above the stricture into the bowel, transverse to its long axis. An enormous mass of feces was then pressed out, the incision was again closed and the bowel clamped in either end, well away from the scirrhus; now the strictured part was removed. It was then discovered that an end-to-end anastomosis was impracticable, because the gut below the stricture was abnormally narrowed and collapsed, while that above was at least four times its normal diameter, hypertrophied and rigid; it had a consistence very similar to the aortic arch. It was feared that the larger Murphy button would be adjusted here with difficulty, that it must long block the way before it could squeeze its jaws through the dense fibrous margin above. Therefore, it was decided that junction by lateral anastomosis would be the safest and most expeditious resource. This was readily accomplished, an opening three inches long being made at site of joining. Strong silk was employed for suture, applied after Connell's method and reinforced by several Lembert sutures, interrupted. The abdomen was closed without drainage. Patient bore the operation very well; passed a very comfortable night, no morphine given; no thirst; no vomiting. Morning temperature after operation 99°, pulse 100.1; no meteorism. At this time it looked as though he would have smooth sailing, with a good recovery in sight,

but unhappily there were breakers ahead. For the first day he remained easy, resting comfortably, from time to time calling for hot coffee, which he sparingly drank with great relish.

At seven o'clock on evening of the second day, he called for the bed-pan and had a very large fecal movement, consisting mostly of hard, large scybalous masses.

Thereafter, a sudden change set in, violent abdominal pain, distressing vomiting with alarming exhaustion. At 11.30 he passed away.

Autopsy twenty-four hours later. Abdomen widely distended with gases. Fecal fluids found oozing up through the wound. On opening the peritoneal cavity fully a gallon of thick fecal material escaped; at one side of anastomoses which had been united the silk sutures had torn out, where they had been placed in the thin, collapsed distal loop. From this breach the fatal escape came, probably in the straining, attending the evacuation.

By another mode of attack, it is now my belief this case should have had a favorable termination; namely, by first making an artificial anus in the center of the descending colon, then, some weeks after, resecting the growth and jointing, meanwhile leaving the lumbar fistula well open, until sound union had occurred below. But we are all rich in after-wisdom and resource, when a case goes wrong.

CONTAMINATION OF PERITONEUM — IMMUNITY TO INFECTION.

The combination operation of resection and anastomosis for colic obstruction, whether we do an end-to-end anastomosis or an exclusion, joining colon to colon, or uniting the ileum with the sigmoid, involves a free abdominal section in order that the part to be dealt with can come well into view.

We are dealing with the great sluiceway of the alimentary canal, always charged with malodorous gases and materials supersaturated by a great multiplicity of germ life; hence it must seem beyond the range of possibility to sterilize properly the peritoneum when the colon is freely opened; it is quite evident, however, that infection *per se* is not the principal danger here, but shock. We well know that the peritoneum manifests a singular tolerance to the colon's contents, where the escape is small and gradual, else every one would die who sustained a perforation of the appendix, which, we have come to well know, is not the case. Let one place the open hand on the distended colon's wall in the living, for a moment; when we withdraw it, it imparts a distinct fecal odor, which conclusively goes to show that exosmosis of gases from the intestine entering the serous cavity of the abdomen is a physiological condition.

Prof. Heinrich Stern, who has made an exhaustive study of the bacteria of the intestine and their rôle in disease, distinctly states, that "in conditions of health there are no pathogenic microbes in any of the area of the alimentary canal; as those domiciled there serve a purpose essential to digestion." He particularly insists that the colon bacillus is not a pyogenic germ.

As a matter of experience we know that wounds, incisions or sections of the large intestine heal with even greater rapidity than those of the ileum.

TECHNIQUE.

Precision in technique, with a deft manual acquired by experimental work in vivisection on animals, with ample practice on the cadaver, inspires the operator with confidence and permits of prompt execution in technique, which is of vital importance in reducing the dangers attending intestinal surgery, and is especially indispensable here.

The ileocecal valve may be quite disregarded when expediency requires its excision or exclusion. In one instance of large resection of the ileum, I was obliged to implant the free end of it on the anterior wall of the caput coli; prompt recovery followed, and now after more than two years there has at no time been any evidence of physiological disturbance in digestion resulting.

RESECTION AND ANASTOMOSIS — RECORDED CASES.

Joubert resected the splenic angle of the colon for cancerous stricture in a man of fifty-eight years, anastomosing the ends by aid of suture. The same night the patient had a natural evacuation, later, complete recovery. Charrier saw a young man of twenty-eight years with persistent constipation, fullness and pain in right iliac fossa; was thought to have "appendicitis." A large, free motion followed lavage, with complete relief. Five months later had another seizure, constipation now absolute. On operation found tumor involving hepatic angle of colon; this was resected and the open ends closed, ileum implanted in sigmoid loop. An hour after operation there was a large evacuation, later, full recovery.

In an elderly, wasted woman of fifty, eighteen months ago, I resected the hepatic flexure for a cancerous occlusion. The procedure was not attended with much loss of blood; but thirty-five minutes occupied in the operation; an end-to-end anastomosis was made and wound closed without drainage. Large fecal movement four hours later; death on third day from exhaustion. No autopsy.

Quènu considers at length the conditions essential for the best results when we essay resection, but strongly emphasizes its great dangers in those greatly wasted, especially if the lesion is malignant.

The late Gregg Smith said that once the presence of intestinal occlusion, by growth, is clearly made out, "it must be immediate surgery or none at all." And this rule is, on the whole, the best, as surgery as a last resource in this class is only too often a useless mutilation.

THE RECTUM.

The rectal end of the large intestine is the favorite situation of a great diversity of pathological conditions, leading to its contraction; in their order of frequency (1) tuberculosis, (2) cancer, (3) syphilis and (4) gonorrhea.

Cancer and luetic stricture are the types commonly calling for surgical relief. Two or three modes of intervention are, at present, most frequently resorted to here. The *first* and most common, as well as the safest, is by an enterostomy of the sigmoid above the pubis. This side-tracks the fecal current, and relieves urgent symptoms. The *second* is sacral resection in the male, or the vaginal in the female; both of these contemplating the

removal of the growth and rectal anastomosis. The *third* and latest involves a laparotomy, as well as a section from below, and then drawing the third segment of the sigmoid down into the hiatus, as a substitute for the displaced rectum; or after the diseased rectum is removed, establishing a left flank anus by the free, open end of the sigmoid.

Some of the elaborate, beautifully drawn illustrations of these operations, which we frequently meet, would lead the uninitiated to suppose that these procedures for rectal resection were simple enough, but here is the delusion, for some of these attractive cuts depict anatomical structures which do not exist as drawn, and are a product of the imagination of the artist, who is usually innocent of any knowledge of anatomy or pathology. Some of these procedures, as so set forth, are not only impracticable on the living body, but they are impossible of execution on the cadaver.

The accessibility of the upper segment of the rectum has been very much increased by the Trendelenburg position, but the difficulties in the way of high resection are sometimes quite redoubtable.

Mickulicz reports a hundred cases of carcinoma entering the Breslau clinic during the past eleven years, of which five were in the small intestine, six in the ascending colon, seven in the hepatic flexure, eight in the transverse colon, twelve in the splenic flexure, four in the descending colon, thirty-one in the sigmoid flexure, twenty in the cecum and twelve in various areas of the large intestine.

LITERATURE.

- Domejean. Thèse de Toulouse, 1900.
 Cumston. N. Y. Med. News, 1901, p. 216.
 Pike. Lancet, London, 1901, p. 533.
 Duchenne. An. Méd. de Caen, 1901, p. 58.
 Monroe. Lancet, London, 1900, p. 705.
 Karo. Berlin Klin. Woch., 1901, p. 101.
 Lauwers. Belgique Soc. Méd., 1900, p. 341.
 Fauchet. Gaz. Méd. de Picardie, 1900, p. 340.
 Sorel. Toulouse Méd., 1901, p. 22.
 Poirier. Mem. Soc. Méd. et Ch. de Paris, 1901, p. 10.
 Schwartz. Loc. cit., p. 192.
 Babcock. Int. Med. Mag., 1901, p. 129.
 Laws. Tourville Med. Monthly, 1901, p. 458.
 Tierlink. Belg. Med., 1901, p. 385.
 Giordano. Soc. de Ch. G. Congress, Med. R., 1900, p. 794.
 Imbert. Mem. de Ch. de Paris, 1900, p. 732.
 Annequin. Arch. Med. Ph., 1901, p. 339.
 Dudley. Journ. Am. Med. Assoc., 1902, p. 1182.
 Smith. British Med. Journ., 1902, p. 168.
 Krouse. Lancet, Clinic, 1902, p. 77.
 Cooke. St. Louis Clinic, 1902, p. 120.
 Gieselburg. Arch. f. Clin., 1901, Ch. Ixvii-4, p. 745.
 Wien. Med. Presse, 1901, p. 1371.
 Southern Practitioner, 1901, p. 296.
 Post-Graduate, 1901, p. 705.
 Lancet Clinic, 1901, p. 634.
 Med. Ch. Presse, 1901, p. 550.
 Interstate Med. Journ., 1901, p. 87.
 Cooney. St. Paul Med. Journ., 1902, p. 555.
 Goodhart. London Lancet, 1902 (II), p. 1246.
 Smith. Am. Jour. Gyn., 1902, p. 463.
 Butlin. Operative Surgery of Malignant Disease (1887).
 Hemmeter. Diseases of Intestine, 1902, p. 117.
 Deaver's Anatomy, 1900.
 Morris' Anatomy, 1902. Last edition.
 Berard. Revue de Chir., 1902, p. 113.
 N. Y. Lancet, 1902, p. 1484.
 Deutsch. Med. Woch., 1902, p. 146.
 British Med. Journ., 1902, p. 1025.
 Phila. Med. Journ., 1902, p. 431.
 Edin. Med. Journ., 1902, p. 480.
 N. Y. Journ. Homeopathy, 1902, p. 303.
 Journ. Am. Med. Assoc., 1902, p. 1304.
 Centralbl. f. d. Grenz., 1902, p. 237.
 St. Paul Med. Journ., 1902, p. 314.
 Lancet Clinic, 1902, p. 430.
 N. W. Lancet, 1902, p. 107.
 Am. Medicine, 1902, p. 457.
 Am. Prac. and News, 1902, p. 85.
 Testut. Journ. Chir., 1902, p. 90.
 Annals of Surgery, 1902, p. 316.
 Int. Med. Mag., 1902, p. 75.
 Med. News, 1902, p. 25.

Am. Journ. Med. Sci., 1902, p. 178.
 West. Med. Review, 1902, p. 68.
 New York Med. Times, 1901, p. 647.
 Flint's Physiology, p. 387.
 Iloway. "Constipation in Infants and Children," p. 312.
 Joubert's Ma. Chir. de Cecal Int., p. 187.
 Terrier et Gosset. Rev. de Chir. 23, 1900, p. 620.
 Mayo. Am. Med. Asso. Journ., 1900, p. 1019.
 Austin. Phila. Med. Journ., 1901, p. 651.
 Charrier. Mem. Soc. de Chir., 1900, p. 924.
 S'Echeyron. Rev. Mens. de Gyn. de Bordeaux, 1899, p. 94.
 Paul Daniel. Rev. de la Tuberculose Quillet, 1899, p. 222.
 C. Daniel. Rev. d'Obstet., 1902, p. 175.
 Reeve. Am. Journ. Gyn. and Surg., 1902, p. 62.
 Foster. Edin. Med. Journ., 1902, p. 105.
 Hawkins. Ind. Med. Record, 1902, p. 80.
 Lyons. Bull. de Ther., 1902, pp. 37-53.
 Alg. Cent. Beitz., Berlin, 1902, p. 754.
 Delbet. Ang. f. de Chir., 1901, p. 529.
 Chaput. Bull. et Mem. Soc. de Chir., 1901, p. 178.
 Chlismaki. Weid. klin. Rund., 1901, p. 581.
 Lillenthal. Am. Med., 1901, p. 164.
 Treves. Lancet, 1896, p. 276.
 Landols. Human Phys. Second edition, 1901, p. 311.
 Jessett. Cancer of Alimentary Tract, p. 287.
 Mavlard. Surg. of Alimentary Tract, p. 471.
 Williams. Cancerous Diseases, 1899.
 Quain. Diseases of the Rectum, p. 187.
 Solly. Surgical Experiences, 1902, p. 494.
 Kramer. Münch. Med. Woch., January, 1902.
 J. von Mielkulez. Chirurgische Erfahrungen über das Darm Carcinom. Archiv für Klinische Chirurgie. January, 1908.

Clinical Department.

SYMPTOMS SIMULATING APPENDICITIS CAUSED BY AN INTRA-ABDOMINAL BAND.

BY JAMES A. KEOWN, M.D., LYNN, MASS.,

Chief Surgeon, Lynn Emergency Hospital.

THE following case is reported to show that other conditions besides appendicitis may cause pain and tenderness in the right side of the abdomen, with a rise of temperature, as well as the need of more careful examination of the abdomen when a normal or nearly normal appendix is found at operation.

A. W., a boy of eight, has for two years had more or less distress in the abdomen in the vicinity of the umbilicus. At times, the pain for a few days would be quite severe. At these times tenderness would be quite marked at McBurney's point, also extending up to the umbilicus. The temperature would also be elevated during these attacks, and in the final one rose to 102.5° F. In two of the attacks vomiting was present, but not to a marked extent. On Sept. 30, 1902, patient after a long period of freedom from pain was seized with vomiting, pain in the abdomen and marked tenderness at the umbilicus and over McBurney's point, with rigidity. The temperature rose to 102° F. on the second day, and slowly subsided during the next week. At the end of two weeks there remained some tenderness on deep pressure at McBurney's point, with some rigidity.

During these attacks the patient was seen by another physician who diagnosed the case, appendicitis. As the mother was alarmed, and as the existence of appendicitis could not be ruled out, the patient was operated upon. On Sept. 30, 1902, under aseptic precautions, an incision was made over the appendix, and the usual McBurney's operation done. The appendix, except for being excessively long (six inches), was normal. On more careful examination for the source of the pain a band was found running from a loop of small intestine upwards to the umbilicus. This was ligated and removed; the stumps were turned inward covered by peritoneum. This on examina-

tion was found to leave an opening part way on the bowel side. At about the end in connection with the bowel, the peritoneum was granular and red. The abdomen was closed, and the patient made an uneventful recovery.

Medical Progress.

REPORT ON PROGRESS IN PATHOLOGY.

BY JOSEPH H. PRATT, M.D., BOSTON.

INTRACRANIAL TENSION.

THERE are two kinds of cerebral compression—local and general. In the former an unequal distribution of intracranial tension results, while in the latter the intracranial tension is distributed equally over the brain. A tumor, abscess, or blood-clot within the cranial cavity illustrate the former condition, in that they subject the brain to the effects of local compression. As the brain is practically non-compressible, the introduction of a foreign body within the skull cavity is only possible through the emptying of the vascular and lymphatic channels in the vicinity of the foreign body. General compression is produced, for example, by acute hydrocephalus, general meningitis and acute cerebral edema of the type described by Cannon and Bullard, which they attributed to alterations in osmotic pressure.

Cushing¹ observed the circulation of the cerebral cortex in dogs by inserting a glass window in the skull. Local compression was produced by distending a rubber bag, which was attached to the inner end of a cannula inserted through a trephine opening. The degree of pressure desired was obtained by allowing mercury to run into the bag from a burette. General compression was produced by allowing normal salt solution to enter the cerebro-spinal space through a rubber tube connected with a flask. The tension was regulated by the degree of elevation of the flask.

Moderate local compression of a hemisphere produced a distinct widening of the smaller veins in the portion of cortex exposed under the window and the veins became darker and easily distinguished from the arteries by their color. If the compression was increased until the intracranial tension equaled the capillary pressure the convolutions lost their rosy color and became blanched. The veins remained filled with dark, stagnant blood. Further increase of pressure caused remote parts of the hemisphere to lose their rosy color and to become anemic. If the compression was general, then the centers in the medulla were rendered anemic.

Venous stasis is indicated clinically by dilatation of vessels in the eye-grounds, and also by drowsiness, apathy or stupor. Anemia of the hemispheres may be produced by local compression without calling forth any symptoms, aside from some slowing of the pulse and alteration in respiration. This indicates that the medulla has not been compressed. Not until the degree of general compression nearly equals blood pressure do the major

¹ Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie, 1902, vol. ix, p. 773; Amer. Journ. of the Med. Sci., 1902, vol. cxxiv, p. 875.

pressure symptoms appear. The result of anemia of the medulla is not death, as commonly held, but a stimulation of the vasomotor center, which leads to a rise of blood pressure above the level of intracranial pressure. With this rise of blood pressure the rosy color could be seen to return to the blanched convolution. If further increase of intracranial tension was produced experimentally anemia of the medulla again ensued and again was overcome by an additional rise of blood pressure. In some instances Cushing found that the blood pressure was held for a time as high as 250 mm. of mercury without evidence of vasomotor failure. This vasomotor reaction was shown to occur when both vagi had been cut. When the vasomotor control of the splanchnic area was eliminated by cutting the spinal cord, the action of the vagi was not able to raise the blood pressure.

Cases of fracture of the base with resulting hemorrhage into the subdural spaces observed by Cushing have given exact clinical confirmation of the experimental findings. The effused blood causes an increase of intracranial tension. When the tension becomes sufficient to produce anemia of the medulla by interfering with the circulation of that part the familiar clinical picture appears, with the slow pulse and respiration and the high, bounding, incompressible peripheral artery, whose tension can be measured at times almost at 300 mm. of mercury. The rise in blood pressure, which is an attempt to supply the vital centers in the medulla with blood, serves only to increase the hemorrhage and thereby to increase the intracranial tension, which was the primary cause of the stimulation of the vasomotor center. Thus a vicious circle is established, and the vasomotor center rapidly fails. Vasomotor failure is indicated by the characteristic rapid pulse of low tension. Arrest of respiration precedes that of the heart. In a patient at the Johns Hopkins Hospital the heart continued to beat twenty-three hours after spontaneous respiration had ceased.

The Traube-Hering waves were frequently observed in the experiments when the vasomotor center was severely taxed to maintain the blood pressure above the intracerebral pressure. The tops of these rhythmic blood-pressure waves rise above, and their hollows fall below the level of the intracranial tension. The low-pressure stage leads to anemia of the respiratory center, and temporary cessation of respiration results. Hence respiration resembling in character the Cheyne-Stokes type is seen.

METHODS FOR DETERMINING THE BLOOD PRESSURE IN MAN.

Stanton² discusses the methods now in use for making clinical estimations of the blood pressure. The principles upon which they are based are set forth and an original apparatus for determining both the systolic and diastolic pressure described.

CLINICAL STUDIES OF THE BLOOD PRESSURE.

Briggs³ presents the results of a clinical study of the blood pressure as measured by the Riva-Rocci sphygmomanometer in various morbid conditions.

² Univ. of Penn. Med. Bull., 1903, vol. xv, p. 466.

³ Johns Hopkins Hosp. Bull., 1903, vol. xiv, p. 35.

The value of a knowledge of the blood pressure in the diagnosis of obscure comatose conditions was shown by a case in which a large cerebral hemorrhage was found postmortem projecting into the lateral ventricle. When brought to the hospital the patient was comatose and the reflexes were absent. There were no localizing symptoms, and from the character of the urine the diagnosis of uremia was made. The blood pressure was enormously high, so high that it could not be accurately determined with the apparatus at hand, but at least equal to 400 mm. of mercury. There is no record of such a high blood pressure in nephritis or uremia, and the author believes that in any similar case the diagnosis of intracranial hemorrhage could be based on the blood pressure alone.

The maximum blood pressure was recorded at intervals of from two to five minutes in a series of cases which were receiving one or another of the "stimulant" drugs. Whisky produced a temporary rise in blood pressure never lasting over thirty minutes, and followed by a slight fall below the former level. Sometimes the initial rise was absent. The total effect of alcohol, therefore, on the vasomotor system is depression. Tincture of capsicum in small doses was found to produce an equal rise, which was not followed by a fall. This supports the view that the primary rise in pressure which alcohol produces is due to gastric irritation. Strychnia hypodermically in moderate doses caused a rise in blood pressure which lasted for from one to three hours. Digitalin had a similar though less marked action. Briggs states that subcutaneous infusions of normal saline solution do not cause any rise of the blood pressure. He concludes that the use of strychnia and digitalin meets the first indication in the treatment of many cases of shock, and these drugs should be given in such quantities as will have the best effect on the blood pressure.

In healthy children Cook⁴ found the blood pressure during the first six months ranged from 75 to 90 mm., during the second year from 85 to 95 mm. and during the remainder of early childhood from 90 to 110 mm. For a child over eighteen months of age 80 was considered moderately low, 70 to 75 low and 60 very low. The author tested the value of blood-pressure determinations as a guide for stimulation in sick children. Alcohol, he states, in repeated doses appeared to have a beneficial effect on blood pressure. Strychnin exerted a more positive action. Hypodermic doses of $\frac{1}{100}$ gr. to infants during the first year and $\frac{1}{100}$ during early childhood usually produced a rise in ten to twenty minutes, which was maintained for two to six hours. With digitalin the rise began, as a rule, in from five to ten minutes, and sometimes amounted to 20 or 30 mm. and lasted from one to two hours.

THE ORIGIN OF THE GRANULAR LEUCOCYTES.

Ehrlich and others have held that the granular leucocytes are formed in the bone marrow. The results obtained in the exhaustive study made by Brinckerhoff and Tyzzer⁵ bring additional support to this view. The bone marrow is regarded as the chief source, if not the only source, of the amphophilic leucocytes of the rabbit, which are the

⁴ Johns Hopkins Hosp. Bull., 1903, vol. xiv, p. 87.

⁵ Journ. of Med. Res., 1903, vol. viii, p. 449.

homologues of the polynuclear neutrophiles of man.

In the early stages of mild peritonitis, produced by the injection of a dilute suspension of turpentine, the amphophilic leucocytes accumulate in the mesenteric vessels and in the surrounding tissues. Coincident with this the number in the peripheral blood decreases but later increases, and the bone marrow becomes depleted of adult amphophilic leucocytes.

The adult amphophiles are formed from the undifferentiated marrow cells, which cannot be distinguished from lymphoid cells. The undifferentiated marrow cells are of small size, with a round vesicular nucleus and a moderate amount of protoplasm, which contains a basophilic cysto-reticulum. Every intermediate form is found in the marrow between these simple cells and the adult amphophile. In addition to the formation of amphophiles by differentiation of these simple cells they may arise by multiplication of the myelocytes. The amphophiles do not multiply.

The supply of amphophilic leucocytes in the circulation is kept up by the entrance of fully formed cells from the bone marrow. The hypothesis is advanced that the chemical composition of the blood serum exerts a chemiotactic influence on the leucocytes in the bone marrow and draws them into the circulation. A leucocytosis is only an indication of an increase of the chemiotactic substances in the blood.

MAST CELLS.

It is not generally known that the granules of mast cells are soluble in water. The granules of the mast cells which are present in such very small numbers in normal blood have more resistant granules than the mast cells in leukemic blood. In 50% alcohol Michaelis⁶ found the granules remained intact. He has devised the following staining method:

- (1) The blood spreads are fixed by heat or alcohol.
- (2) Stain about five minutes in a saturated solution of thionin in 50% alcohol.
- (3) Wash quickly in 50% alcohol.
- (4) Dry.
- (5) Mount.

The mast-cell granules stain reddish brown to reddish violet. The nuclei stain blue.

THE NATURE AND STRUCTURES OF THE BLOOD PLATELETS.

The blood platelets have been generally considered to be structureless bodies. Some authorities have regarded them as degeneration products of the red blood corpuscle. Dekhuyzen⁷ and Deetjen,⁸ working independently, have found that the blood platelets are ameboid nucleated cells. This important discovery has since been confirmed by a number of investigators.

Dekhuyzen studied the living blood cells in solutions of sodium chloride, which were isotonic with the blood. For amphibians he found 0.8% NaCl the proper concentration, for mammals, 0.9 to

0.95% NaCl. All the glassware used in the preparation or preservation of this saline solution and slides and cover-slips were carefully cleaned with fuming sulphuric acid and then strongly heated before they were used. The water was distilled in an apparatus consisting entirely of glass. The sodium chloride was purified by repeated meltings and crystallizations.

The salt solution was sterilized in small high beakers, each of which was placed in a Petri dish and covered with a larger inverted beaker.

The streaming blood was well mixed with the salt solution. Some of the sediment was removed with pipettes and examined under large cover-slips (from 3 to 5 cm. in size).

As a fixing and staining medium, Dekhuyzen employed a mixture of either three or nine parts by volume of 2% osmium tetroxide (OsO_4) and one volume of a 6% acetic acid which contained $\frac{1}{8}\%$ methylene blue.

To demonstrate the blood platelets in man, the solution containing nine parts of osmium tetroxide should be used. The solution is cooled in a vessel packed in ice. Then the cold fluid should be vigorously stirred with a bleeding finger tip.

From his studies Dekhuyzen concludes that in worms, echinoderms, mollusks, crustacea and vertebrates this cell has the same function. It is an ameboid, finely granular spindle cell with an oval nucleus. In the circulating blood its surface is smooth. It is very vulnerable. As soon as it leaves the blood stream its circumference enlarges through the formation of protoplasmic lamellæ, which unite to neighboring cells so that a great accumulation of cells arises, and thus a thrombus is formed. The name "thrombocyte" is adopted as preferable to blood platelet, as it indicates the apparent nature and purpose of these bodies.

Argutinsky⁹ has been able to demonstrate the nucleus of the blood platelets in cover-slip preparations which were fixed in a mixture of mercuric chloride and alcohol and stained by the Nocht-Romanowsky method. The blood films should be very thin, and at once immersed in the fixing fluid. The stained nucleus of the platelet has the same color as the nucleus of the lymphocyte. The surrounding zone of protoplasm is pale blue.

SMALLPOX THE RESULT OF A SYMBIOSIS OF THE SPECIFIC MICRO-ORGANISM AND STREPTOCOCCUS PYOGENES.

Although Ewing¹⁰ does not maintain that *Streptococcus pyogenes* is the specific contagium of variola, he believes that there is a symbiosis of *Streptococcus pyogenes* and the specific agent, and that it will be impossible to produce the disease without the aid of this micro-organism.

THE PUSTULATION IN SMALLPOX NOT DUE TO BACTERIA.

Shamberg¹¹ holds from his observations that the pustulation in smallpox is not due to secondary infection with any of the ordinary pyogenic bacteria, but is probably the result of the action of the micro-organism which produces the disease. *Streptococcus pyogenes* and other bacteria were rare in the early

⁶ Münch. Med. Woch., 1902, p. 225.

⁷ Anatomischer Anzeiger, 1901, vol. xix, p. 529.]

⁸ Arch. f. path. Anat., vol. cixiv, p. 239.

⁹ Anatomischer Anzeiger, vol. xix, p. 552.

¹⁰ Trans. Assoc. Am. Phys., 1902, vol. xvii, p. 209.

¹¹ Journ. Am. Med. Assoc., 1903, vol. xi, p. 489.

lesions. In the variolous fluid the so-called sporozoa described by Guarnieri were always present.

ACID-RESISTING BACTERIA.

Abbott and Gildersleeve¹² conclude that the majority of the acid-resisting bacteria may be distinguished from the true tubercle bacilli by their inability to resist decolorization by a 30% solution of nitric acid in water. Some of the acid-resisting bacteria are capable of causing in rabbits and guinea pigs nodular lesions suggestive of tubercles. These nodules are always seen in the kidneys, occasionally in the lungs, and practically not at all in the other organs. They do not undergo caseation, and dissemination never occurs. Although sometimes present in dairy products, they have no pathological significance, and are the result of accidental contamination from the surroundings.

ALTERATIONS IN THE RED BLOOD CORPUSCLES IN CARCINOMA OF THE STOMACH.

It has been shown that in icterus and in infectious diseases there is an increased resistance of red blood corpuscles to hypotonic sodium chloride solutions. Lang¹³ has devised a method of determining the resistance of red blood corpuscles against the hypotonic sodium chloride solution. The method depends upon the fact that as red blood corpuscles go into solution, the mixture becomes transparent. He studied seventeen cases of carcinoma of the stomach, and twenty other cases of stomach disease, and found that resistance of erythrocytes to lowering of the osmotic pressure of the surrounding fluid is generally greater in cases of carcinoma than in other stomach diseases. He attributes this change to toxic products formed by the neoplasm. This condition becomes more marked as the disease progresses. The author suggests the hypothesis that a toxin formed by the new growth causes at first hemolysis, but later the red blood corpuscles grow more resistant to the toxin, and this same resistance acts against hypotonic solutions.

LECITHIN AS A COMPLEMENT.

Keyes¹⁴ found that the erythrocytes of some animals were hemolyzed directly by venom, while the erythrocytes of other species were hemolyzed only after a complement was added. Not all the corpuscles in any animal showed the same susceptibility. The red blood corpuscles of dog and guinea pig were most susceptible, of horse very little, and of ox, sheep and goat, not at all, but hemolyze on addition of a complement.

Keyes shows that an endocomplement exists in red blood corpuscles, and that a definite chemical crystallizable substance, lecithin, can assume, in a certain sense, the rôle of complement. He thinks that lecithin and cobra amboceptors come into union, and by this the avidity of the cytophile group of the cobra amboceptors is heightened. He holds that the venom amboceptors, besides a cytophile group, have two heptophore groups, of which one can bind the ordinary complement and the other the lecithin.

¹² Trans. Assoc. Am. Phys., 1902, vol. xvii, p. 37.

¹³ Zeit. f. klin. Med., vol. xlvii, p. 153.

¹⁴ Berlin. klin. Woch., 1902, pp. 886, 918.

A STUDY OF SNAKE VENOM.

Flexner and Noguchi¹⁵ found that red blood corpuscles washed free from serum were agglutinated but not dissolved by snake venom. If serum was added hemolysis appeared. They conclude that venom contains several or many amboceptors, which become active through certain constituents of the serum. Venom contains principles which are agglutinating and dissolving for white blood corpuscles. The agglutinating principles may be identical for both white and red cells. The dissolving principle for leucocytes is distinct from that for red cells. In order that solution of venomized leucocytes shall occur, a complement-containing fluid is required. All venoms when used in considerable quantities destroy the bactericidal properties of many normal blood sera. The manner of this destruction consists in the fixation of the serum complements by the venoms.

Antivenom neutralizes venom and removes both the hemolytic and the anti-bacteriolytic actions.

Recent Literature.

Applied Surgical Anatomy, Regionally Presented for the Use of Students and Practitioners of Medicine. By GEORGE WOOLSEY, A.B., M.D., Professor of Anatomy and Clinical Surgery in Cornell University Medical College; Surgeon to Bellevue Hospital, New York, etc. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1902.

This book is an octavo volume of 511 pages, attractive in appearance, of convenient size, and printed with clear, distinct, easily read type. The text is illustrated with 125 illustrations and diagrams, including 59 full-page "inset" plates in black and colors. It has a vast amount of anatomical knowledge of a topographical, physiological, pathological and clinical character condensed in its pages. The writer claims that, as anatomy is the most basic of all medical sciences, a working knowledge of its data is indispensable for the study and practice of scientific medicine or surgery. Isolated details do not usually arouse a student's interest, but when set forth in their natural relationship and their practical application emphasized as well as indicated, the mind not only grasps but retains them with ease, oftentimes even with pleasure.

Dr. Woolsey has endeavored to embody these principles in this work in such a manner as to meet the requirements of both students and active practitioners.

After an experience of twelve years in anatomical teaching, he believes that the regional and topographical method of treating "Applied Anatomy" is the most convenient for clinical purposes. One might say that after the study of surgical anatomy comes the study of anatomical surgery, or, perhaps, more correctly, that the one should go hand in hand with the other, so intimately are they connected.

In making this book the author has combined what facts his own study, observation and experi-

¹⁵ Journ. of Exp. Med., 1902, vol. vi, p. 277.

ence have shown him to be important as well as of value with the best he has been able to collect from the writings of others, notably Joessel, Tillaux, Merkel, Gerrish, Testut, Keiller and Zuckerkandl. The classification of the subject is regional; the anatomy that of one skilled in modern methods of studying and presenting the subject. The detailed description of the relation of important structures is often exceptionally full and satisfactory. One notes this in connection with the description of the parotid and its environments, an area usually presented as if projected on a plane surface without much attention to perspective topographical detail. The especial anatomy of the orbital region is another illustration of this point which attracts attention. Again the manner of graphically presenting in colors the areas of the cutaneous nerve supply is exceedingly convenient and satisfactory to one wishing to apply such knowledge to a particular case clinically. The same is true of the table showing the relation of the origin of the spinal nerves to external anatomical landmarks; also that indicating their peripheral distribution.

As one studies these pages one is continually finding data the practical value of which is readily appreciated by any one engaged in clinical work, especially diagnosis and operative surgery. The book will also prove to be one of marked value to the medical practitioner as well as to those whose chief work is surgery.

The illustrative portion of the book is a striking feature. The illustrations (so important a part in a work of this character) are well chosen, are excellently well made and form a valuable adjunct to the text. The author has apparently fully appreciated the value of the graphic method of teaching, but has by no means subordinated the rest of the subject to this feature, as is often done. It is in no sense a mere "picture" book, since each factor is presented in its just proportion to form an harmonious whole.

After an inspection of the volume one does not hesitate to congratulate the writer on the success of his efforts and to welcome gladly his contribution to medical literature. It is a book that will be extensively used, especially by those whose work requires a knowledge of topographical or one might say "applied" anatomy above the ordinary.

Diseases of the Stomach. Their Special Pathology, Diagnosis and Treatment, with Sections on Anatomy, Physiology, Chemical and Microscopical Examination of Stomach Contents, Dietetics, Surgery of the Stomach, etc. By JOHN C. HEMMETER, M.D., Philos. D., Professor in the Medical Department of the University of Maryland, Baltimore, etc. With many original illustrations, a number of which are in colors, and a lithograph frontispiece. Third enlarged and revised edition. Philadelphia: P. Blakiston's Son & Co. 1902.

Professor Hemmeter not only writes excellent books, but has the faculty of keeping them up to date. The present volume is no exception. It contains one hundred pages more than did the first edition published in 1897, and the text shows real revision. New work, whether from the physiological, chemical, pathological or clinical standpoint, has found a place. As a single example of the additions in

bibliography, we would mention that the literature of gastric cancer has been enriched by nearly one hundred and fifty references.

The author apparently feeds his ulcer patients by the mouth three days after hemorrhage, and suggests that ulcer patients, when well nourished, can go several days without nutrient enemata in the beginning of treatment. We surmise, however, that he seldom goes to such extremes. We are in accord with the view that chronic continuous flow of gastric juice is a secondary rather than a primary disorder. The author advises operation for gastric cancer quite freely. It would appear to us that a decided reaction had taken place in the last two years against such operations, the field now being reserved for exceptionally favorable cases.

It must be a source of gratification, as it is of congratulation, that views expressed as hypotheses in the first edition, in the third, through the results of experimental study, can be recorded as facts. We have reread the volume with interest and profit, and can heartily recommend it.

E. P. J.

A Reference Handbook of the Medical Sciences, Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. A new edition, completely revised and rewritten. Edited by ALBERT H. BUCK, M.D. Volumes IV and V. New York: William Wood & Co. 1902.

Considering the natural difficulties in the prompt publication of a book of this character, it must be gratifying alike to editor and readers that already five volumes of the set have been distributed. Volume IV takes us partly through the letter "I," and Volume V into the letter "M." Many important subjects are considered in those two volumes, among which many be mentioned an excellent discussion of the eye, of the heart and its diseases, an important résumé of our knowledge of inflammation, and a detailed treatment of the lymphatic system, together with a series of carefully prepared papers on the general subject of insanity. It is unnecessary to say that the exceptionally high merit of the earlier volumes has been continued in these, both in respect to the subject matter and the admirable accompanying illustrations, which are exceptionally profuse and well executed for a work of this character. Three further volumes are expected, with which this most successful edition of a well-established reference handbook will be completed.

A Nurse's Guide for the Operating Room. By NICHOLAS SENN, M.D., Ph.D., LL.D., C.M. Illustrated. Chicago: W. T. Keener & Co. 1902.

This book of 182 pages is written to serve as a guide to the trained nurse in her work in the operating room. The text is stated to be chiefly abstracts of Dr. Senn's lectures to the Training School of St. Joseph's Hospital, Chicago.

For descriptive purposes, the book may be divided into two parts; one of which treats of the usual details described in nurses' manuals, such as sterilization, methods of preparation for operative work, dressings and surgical materials, use of anesthetics, etc., while the other consists of lists of instruments which Dr. Senn is in the habit of using for different operations, illustrated more or less by cuts of instruments and apparatus.

There is an opportunity for just such a book as Dr. Senn has apparently attempted to write, but this publication, although a neat, attractive volume of convenient size, will, we fear, answer the *general* demand only indifferently well. The rambling description of the subject suggests the unsystematic extemporaneous lectures so frequently delivered to a hospital nurse, the subject matter of which (good, bad and indifferent) is evolved from the speaker's personal ideas and experience under the inspiration of the moment and the suggestions of his environments. There is apparently a lack of care in the arrangement of both text and illustrations.

If the book is intended only as a guide for Dr. Senn's assistants it will undoubtedly serve such a purpose satisfactorily; but the details of technique described are of such a local and personal character as to prove rather disappointing to one seeking a systematic manual in this branch of technical work.

The plan of using illustrations of instruments in common use, in order to familiarize a nurse with their names and purposes, is an excellent one.

Clinical Methods. A Guide to the Practical Study of Medicine. By ROBERT HUTCHINSON, M.D., M.R.C.P., and HARRY RAINY, M.A., F.R.C.P. Ed., F.R.S.E. Fifth edition. 612 pp. Chicago: W. T. Keener & Co. 1902.

In trying to condense into a volume of this size so extensive a subject, which includes a description of all the physiological, chemical, bacteriological and clinical methods useful in present-day practice, the authors fail, as it seems to us obvious they must fail, to produce a book of real value. The subjects are of necessity briefly and too superficially considered, omissions are inevitably made, and, in spite of the evident pains taken to bring the subject matter up to date, important recent material and conclusions have not been introduced. Comprehensive treatment of any one subject is impossible in the space allotted to it, and the book lacks the value which such treatment of any one subject might furnish as a suggestion for similar lines of investigation in other directions.

The book has, however, had a wide sale, having now reached its ninth thousand.

Lea's Series of Pocket Textbooks: Anatomy. A Manual for Students and Practitioners. By WILLIAM H. ROCKWELL, JR., M.D., Formerly Assistant Demonstrator of Anatomy in the College of Physicians and Surgeons, Columbia University, New York. Series edited by BERN B. GALLAUDET, M.D. Illustrated with 70 engravings. Philadelphia and New York: Lea Brothers & Co.

Gray's classical textbook of anatomy apparently serves the double purpose of providing students and practitioners with a practical guide in their anatomical work, and also in forming the basis upon which smaller textbooks may be written. The author of this manual claims no originality for his work, inasmuch as it is a compilation from Gray's Anatomy, which has been closely followed in order and description. The book is conveniently arranged and printed with type of such a character that quick reference is facilitated. The binding and general appearance of the volume is the same as that of others of the series which have already appeared.

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IMMUNITY.

THERE is perhaps no question relating to medicine which has received so much attention from investigators during the past ten years, and which is so pregnant with possibilities for the future, as the subject of immunity. Its importance would seem to be sufficiently evident if the term were applied in its narrower sense, that is to say, in its relation to infectious diseases; but even a short excursion into the realm of recent literature shows that the term "immunity" as now used is a broad one, which cannot be circumscribed by considerations affecting bacteria and their products alone, but must be enlarged to include animal and vegetable cells of very varying character and origin. To the already well-known types of immunity seen after diphtheria, tetanus, typhoid and cholera, must now be added other varieties of immunity such as those produced by the action of red corpuscles, white corpuscles, spermatozoa, etc.; for all these cells, bacterial or otherwise, when introduced in a proper manner into susceptible animals, produce tissue changes through which the animals acquire an increased resistance to those cells or their products, and it is the study of just these phenomena of increased resistance and its causes which offers such a bright outlook for progress in a number of directions, and especially in that of serumtherapy.

Although broad foundations for this study had been laid already by such men as Behring, Roux and Pfeiffer, at present the most important names associated with this question are those of Ehrlich in Germany and Bordet in France, and of these two, Ehrlich undoubtedly holds the higher place. It is to Ehrlich that we owe the now well-known "side-chain" theory, which, though not perfect, furnishes the best working hypothesis yet dis-

covered for the explanation of immunity, natural and acquired. According to this theory the process of intoxication such as is seen in diphtheria, for instance, is not in its essence pathological, but is, in large degree, analogous to physiological processes as seen in the assimilation of food. That is to say, the diphtheria toxin is poisonous because there are certain body cells which take it up; which have certain "receptors" which attract and unite with the toxin just as the cell attracts and assimilates from the blood certain food molecules. On the other hand, if a certain animal is resistant to a certain toxin, it is because the cells of that animal possess no receptors capable of uniting with that toxin. When, however, the toxin becomes once anchored to the cell the analogy to physiological processes, just mentioned, ceases, for in this instance, the toxic molecule causes an injury to the cell, that is, an intoxication. This injury the cell, if not too severely damaged, hastens to repair, but, according to the general law of repair, does not content itself with a simple *restitutio ad integrum*, but reproduces in excess that very portion of the cell which in the first instance united with the toxin. This excess is thrown off into the blood current, and there, by its continued affinity for the poison, acts as antitoxin. By the immunization of animals with gradually increasing amounts of toxin, we get finally the production of these cell receptors or antitoxin in great excess, and it is by these newly formed cell constituents, now free in the blood, that the toxin in diphtheria is neutralized and kept from its injurious action upon the body cells.

The problem, as thus outlined, is the one seen in diphtheria and tetanus, and is comparatively simple. When we come to the consideration of typhoid and cholera, however, the question becomes much more involved. Pfeiffer in all his monumental work upon typhoid and cholera immunity could not produce a true antitoxin for these diseases. His sera were of the bacteriolytic variety, that is, they could dissolve, under proper conditions, the bacterial cell, but could not neutralize its toxic product.

It was at this point that the studies upon hemolysis and allied processes began, and as hemolysis and bacteriolysis follow practically the same laws, the two processes may be considered at the same time.

In the first place we soon find that, in their relation to the "side-chain" theory, hemolysis and bacteriolysis are subject to conditions much more complicated than those seen in intoxications of diphtheria and tetanus. To be sure we have to do still with receptors and their indefinite multiplication as the result of inoculations with the especial

variety of cell, but, whereas the receptor (or antitoxin) in diphtheria was of a simple variety known as a "uniceptor," with but a single bond of affinity, in bacteriolysis the specific body obtained as the result of immunization is an "amboceptor," with two bonds of affinity, one for the special cell and the other for a second substance, now spoken of for the first time, and known as the complement. This complement is a nonspecific body present in nearly all normal sera, and resembles in nature the ferments. It is very unstable, is destroyed at 58° C., and disappears from a serum spontaneously with considerable rapidity. It thus differs markedly from the specific immune body or amboceptor, which is stable, resists heat (58° C.), and can be preserved unchanged for considerable lengths of time.

Now, for the destruction of the special cell, both the immune body (amboceptor) and complement are absolutely essential, the amboceptor acting as a connecting link, through which alone the complement can exercise its destructive power upon the cell. Neither substance can act in the absence of the other. That this is a fact of the utmost importance can be seen easily when we learn that, in the process of immunization (of a horse against typhoid for instance), it is the immune element alone which is increased to any extent. The amount of complement remains practically unchanged. The probable cause for the failure of serumtherapy in this class of diseases is thus apparent. We have supplied the patient with the immune element probably in excess, but have achieved no convincing results because of lack of complement. The moral is obvious.

It seems, therefore, almost certain that in natural as well as acquired resistance to disease these complements, acting through natural or acquired amboceptors, are the defensive agents, and in support of this view may be mentioned the experiments of Longcope on terminal infections; Abbott, on the influence of alcoholic poisoning on susceptibility to infectious disease; and Moro, on the sera of breast-fed and bottle-fed infants. Terminal infections, alcoholic poisoning and bottle-feeding were all associated with marked decrease in the complements of the blood. These experiments suggest, immediately, of course, an explanation for the high mortality of alcoholics in pneumonia, for instance, and that of artificially fed infants as compared with the breast-fed. The field for investigation in this line is really unlimited. For instance, why do certain families succumb to tuberculosis? Is there not a lack of complements? Are the complements increased by outdoor life? Was there not something good in that treatment of tuberculosis in which patients drank fresh blood at the slaughterhouses?

Another line of inquiry would have in view a serum antagonistic to cellular growths of malignant types,—cancer and sarcoma. Such sera have been produced by injecting animals with the proper cells, but the results of treatment are as yet discordant.

Finally, the far-reaching studies in hemolysis cannot but throw much light on the subject of the severe anemias, the causes of which have been up to the present far from established.

That the study of these subjects is most promising is shown furthermore by the large number of investigators engaged in it. All the world is represented in the work, and we may look with confidence to very important results in the near future.

AN IMPROVED OPERATION ON THE FIFTH NERVE.

With the extirpation of the Gasserian ganglion or the division of the sensory root of the fifth nerve, between the ganglion and the pons, the last word on operations for tic douloureux has apparently not been said. Dr. Robert Abbe of New York, in a paper in the January number of the *Annals of Surgery*, reopens the question and suggests a new procedure, the usefulness of which has been confirmed in his experience. The plan which he suggests as feasible and reasonable is to divide the second and third divisions of the nerve within the skull at the foramen rotundum and foramen ovale, evulse the portions connected with the Gasserian ganglion and then interpose a piece of rubber tissue under the dura in such a way as to cover the foramina, thereby making a barrier to the regenerating nerves. Inasmuch as the return of pain after operation is usually dependent upon the regeneration of the nerve, which even an excessive amount of violence fails to prevent, it is clear that any method by which the nerve can be prevented from re-establishing its continuity fulfils the demand which this operation makes upon the surgeon. This the interposition of the rubber is said to accomplish.

An interesting case is reported of a man of forty-six, upon whom the Hartley operation was attempted, with such excessive hemorrhage that it was necessary to pack the wound a number of times before the nerves were satisfactorily exposed. The ganglion was not removed because of continued hemorrhage. The second and third branches were cut and destroyed as far as possible up to the ganglion, and to prevent the future union of the divided nerves a small sheet of sterile rubber was interposed under the ganglion, covering the two foramina. A good recovery followed, and now, at the end of six years, there has been absolutely no return of pain.

The presumption is that the rubber tissue has remained as placed at the time of the operation. A similar procedure has been successful in five cases.

Dr. Abbe very rightly claims several advantages for this operation as compared with the more radical ones in which the Gasserian ganglion is itself destroyed. There is less hemorrhage, less shock, less danger of injury of the temporal lobes of the brain, with an equal likelihood of permanent relief of pain. Statistics have shown that the Gasserian ganglion operation is by no means devoid of danger, particularly since the operation must often be undertaken with patients who are debilitated and often the victims of arteriosclerosis. For example, in a series of cases reported by Lexer and Türk, of seventeen fatal cases, eleven died from shock. Dr. Abbe believes that operations on the ganglion have been carried to an unnecessary degree of severity; that the interposition of rubber tissue may be relied upon to effect a complete relief of pain at least for six years, and that the method is simple, speedy and safe.

A wide experience must always be the final arbiter in such matters, but it certainly seems as if this operation should so far commend itself to other surgeons that the opportunity to gain this experience may not be long delayed. The mechanical conditions necessary to keep a foreign body in place could hardly be better in any other part of the body; if the rubber tissue remains fixed, and does not disintegrate before the nerve has lost its reparative power, the conditions of success are apparently assured.

STATE REGISTRATION OF NURSES.

A MASS meeting has recently been held in Boston by nurses and those interested in the cause of nursing for the purpose of influencing public opinion to the end of securing registration for nurses in the same general way that it is provided for physicians. A number of nurses spoke at this meeting, as well as laymen and physicians, with the consensus of opinion that a plan of organization looking toward state registration is highly desirable. It is undoubtedly true in nursing, as in all other professions, that men and women of very different attainments enter into it as a means of livelihood. It is desirable, therefore, that so far as possible a uniform standard of requirements be established, both for the protection of the nurses themselves and for the benefit of the community at large. So far as we understand the plan proposed, it is suggested that certain qualifications be demanded of nurses seeking registration, which will tend to establish a class of nurses who have a certain recognized attainment. To accomplish this end in a short period of time is naturally impossible, but it is maintained that any movement

looking toward the final establishment of a distinction between good nurses and inefficient nurses will be subserved by such legislation as is proposed. It is furthermore expected that through such a plan of registration the possibility of such occurrences as we have recently seen in the person of Jane Toppan will be unlikely, if not impossible. In general, we are of the opinion that the time may come for nurses to organize themselves as a profession and to seek legal recognition of this fact. A beginning has no doubt been made by the meeting to which we have referred.

MEDICAL NOTES.

INTERNATIONAL MEDICAL CONGRESS.—The Executive Committee of the Fourteenth International Congress of Medicine announces that the congress will be held on the date set, April 23 to April 30, inclusive. The exact program is in process of preparation, and the committee desires those intending to contribute to the congress to send as soon as possible titles of their communications to the secretary-general at Madrid, accompanied, if possible, by an abstract, preferably written in French. It is intended to have these abstracts printed and to use them to facilitate the discussions at the various sessions. Railway and boat fares have been reduced about fifty per cent for the benefit of those attending the congress.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, March 4, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 34, scarlatina 52, typhoid fever 7, measles 16, smallpox 0.

THE FAULKNER HOSPITAL.—The new Faulkner Hospital, at the corner of Centre and Allandale streets, Jamaica Plain, was opened to the inspection of the general public on February 25. It is a free hospital given to the old town of West Roxbury by the late Mrs. Abby L. A. Faulkner and her husband, Dr. George Faulkner. It contains at present twenty-five beds, which will be increased to fifty by later extensions. Dr. Henry Jackson has been appointed advisory physician, and Dr. Franklin G. Balch, advisory surgeon. The hospital is to be opened for patients on March 9.

DEATH FROM CHLOROFORM.—It is reported that a death took place lately in Ashmont from chloroform administered for purposes of surgical anesthesia to a young and healthy lad.

FAMOUS TRIPLETS.—It is reported that Mr. William A. Grant, one of three brothers who were triplets, died recently in Torrington, Conn., at eighty-one years of age. The other two brothers lived to be seventy-two and seventy-six years old respectively. The seventieth birthday of these men was celebrated in 1891, by a mass meeting in the town hall, and a banquet.

NEW YORK.

NEW BELLEVUE HOSPITAL BUILDING.—At a meeting of the Board of Estimate and Apportionment held Feb. 27 an appropriation of \$75,000 was passed for preliminary work on the proposed new buildings for Bellevue Hospital, the total cost of which is to be about \$3,000,000. It is understood that Messrs. Hynes and La Farge, whose designs were successful in the competition for plans for the Episcopal Cathedral of St. John the Divine, have been selected as the architects. A new building for Fordham Hospital, in the Borough of the Bronx, to be erected at a cost of \$500,000, was also determined upon. An appropriation had already been made for a new building for Harlem Hospital, and next month work on its erection is to be commenced. It is to be situated on Lenox Avenue, between 136th and 137th streets, and the plans contemplate a five-story brick structure in the form of a T, with a frontage on the avenue of 157 feet. Two ward wings will extend back from the main building 37 feet, and a central administration building, 200 feet. The estimated cost is \$300,000, and it will accommodate 150 patients. The extension of the two ward wings, which may be made later, would double this capacity.

MEDICO-LEGAL DECISIONS.—In accepting a plea of murder in the second degree in the case of William Hooper Young, a grandson of Brigham Young, who has been on trial for the murder of Mrs. Anna Pulitzer, Justice Merrick made an address to the jury in the course of which he said: "The man's mental condition was the cause for the action taken. You are aware that this man has been under medical observation. The experts reported him legally sane, but insane from a medical point of view. He is, therefore, supposed to know the difference between right and wrong, and should be held responsible. But as his insanity has been reported to me as being of the progressive order, it is difficult to tell where the one merges into the other. It seemed to me that, under the circumstances, the jury was not justified in inflicting the death penalty, and should be satisfied with a sentence which should confine this man to prison for life, rather than run the risk of putting to death

a possibly irresponsible man." Among the medical experts who investigated the mental condition of the prisoner were Drs. Austin Flint, C. H. Dana and Carlos MacDonald.

FILTRATION PLANT AT ITHACA.—On Feb. 27 there was signed a contract between the Ithaca Water Company and the Council of Cornell University, in which the latter agreed to furnish \$150,000 for the construction of a filtration plant. On the same day the board of health passed a resolution making it a misdemeanor to drink or serve to others unboiled water supplied by the local water system. Nine new cases of typhoid fever in Ithaca during the preceding twenty-four hours were reported to the board. On Feb. 28 nine additional new cases were reported. Several Cornell students who had gone away from the university have died from typhoid at their homes. One of these deaths occurred in Brooklyn on Feb. 22; one in Paterson, N. J., on Feb. 23; one in Watertown, N. Y., on the same date; one in Middletown, Conn., on Feb. 25, and one in Auburn, N. Y., on Feb. 28. Two others have died of the disease in Ithaca, one on the 22d and one on the 28th, bringing the total deaths among students up to eighteen.

POSSESSION OF IMPURE MILK NOT A CRIME.—The Appellate Division of the New York Supreme Court has handed down a decision in which it is held that the mere having of impure milk in one's possession, or the bringing of it into the city, does not constitute a crime, unless it be the intention to offer it for sale. The driver of a milk wagon for a large dairy company was one day loading milk cans on his wagon at a railway station, when a sanitary inspector opened one of the cans, the contents of which were shown to be below the legal standard of richness. The driver was arrested, and as the result of his trial in the Court of Special Sessions he was fined \$100 for having the milk in his possession. At the trial it was shown that it was his duty to take the milk from the station to the company's stables, where it was tested, and that the particular can which the inspector opened, as well as another out of the same lot, was sent back and was not offered for sale. The Appellate Division, in reversing the judgment and ordering a new trial, holds that the intention to sell is an essential element of the offence, and mere possession alone, apart from any such intention, is not inhibited by the provisions of either the sanitary code or the agricultural law.

INVESTIGATION AT BELLEVUE HOSPITAL.—An investigation has recently been made before Magistrate Pool of charges alleging certain cruelties on the part of the attendants in the alcoholic ward of Bellevue Hospital. They were entirely un-

ported by the evidence presented, and on Feb. 21 the district attorney requested that the court dismiss the action.

Obituary.

W. E. B. DAVIS, M.D.

DR. W. E. B. DAVIS died through an accident Feb. 24, in his thirty-ninth year. Dr. Davis, although still a comparatively young man, had identified himself with medical practice and the progress of medicine in the South. He was graduated from the Bellevue Hospital Medical College in 1884, and practiced and lived during the latter years of his life at Birmingham, Ala., devoting his attention chiefly to operative gynecology. He was a member of many medical societies, and had held various offices from time to time in the American Medical Association. He was honorary member of the British Gynecological Society, and one of the founders of the Alabama Surgical and Gynecological Association. Among his various services to his profession should be mentioned the fact that he and his brother were joint editors for two years of the first medical journal published in Alabama. He was also connected with the *American Gynecology Journal* in an editorial capacity. His writing was largely confined to abdominal surgery.

T. GAILLARD THOMAS, M.D.

DR. THEODORE GAILLARD THOMAS of New York, died suddenly of cardiac disease, on Feb. 28, at Thomasville, Ga., where he had gone for the enjoyment of the out-of-door life, rather than from any failure of his usual vigorous health. Dr. Thomas was born on Edisto Island, near Charleston, S. C., Nov. 21, 1831. His father was the Rev. Edward Thomas, a lineal descendant of the Rev. Samuel Thomas, who in 1700 was sent to South Carolina by the Church of England. His mother was Jane Marshall Gaillard, who traced her ancestry back to Theodore Gaillard, a Huguenot refugee, who went to South Carolina on the revocation of the Edict of Nantes. He was graduated from the Medical College of Charleston in 1852, and, after pursuing his professional studies for some time abroad, settled in New York. After a service as resident physician in the Bellevue and Ward's Island hospitals he became associated in practice with the late Dr. John T. Metcalfe, whom he always regarded with veneration and loving esteem, and after whom he named his oldest son. From his first entrance into the profession Dr. Thomas showed himself a young man of exceptional abilities and promise, and his clinics and diagnosis classes at Bellevue Hospital soon attracted a large and eager following of students. At the same time he was eminently successful as a general practitioner.

He gradually devoted his attention more particularly to obstetrical work, and when he received the appointment of professor of obstetrics and diseases of women and children at the College of Physicians and Surgeons, at once took the first rank as a teacher and consultant. Later he paid special attention to gynecology and abdominal surgery, giving up the chair of obstetrics at the college, but retaining that of diseases of women. As a clear and impressive clinical lecturer he had scarcely an equal, and his clinics, the most popular in any of the departments, were always more than crowded by an enthusiastic gathering of listeners, among whom were many practitioners, as well as students. As an operator he won no less distinction, and at the Woman's Hospital, founded by Marlon Sims, where he was one of the attending surgeons, his brilliant work attracted world-wide attention. While still retaining his appointment at the Woman's Hospital he established a private hospital of his own, to which patients came for treatment from all parts of the country.

As a writer Dr. Thomas was no less eminent than as a teacher, operator and consultant. He was continually

contributing to medical societies and journals the rich fruits of his wide experience and mechanical ingenuity, while his systematic treatise on the diseases of women was at once recognized as a classic, and became the most popular work of its kind ever published in America or perhaps in the world. It ran through many successive additions, and was translated into a dozen languages, including Chinese. In the more recent editions he had as a collaborator the late Dr. Paul F. Mundé. A series of six lectures on "Abortion and its Treatment, from the Standpoint of Practical Experience," which he delivered at the College of Physicians and Surgeons after he became professor emeritus, and which was published by the Appletons, also had a wide vogue. Mention should also be made of his gifts as a public speaker. His voice was one of great richness and considerable power, and whenever he spoke in medical societies, or on the rare occasions when he made a public address, what he had to say was always expressed in the most carefully chosen and admirable English. The profession and the scientific world in general were always delighted to do him honor. Among the positions which he had held were the presidencies of the New York Obstetrical Society and the American Gynecological Society, and he received many honors from medical bodies all over the world. One of his most excellent characteristics was the willingness with which he was ever ready to extend substantial aid and encouragement to the younger members of the medical fraternity. Probably if at any time during the last few years a vote had been taken among physicians as to who was the most eminent and thoroughly representative man in the profession in New York, it would have been almost unanimously in favor of Dr. Thomas. One of the most notable occasions of the kind ever seen in the city was the great banquet tendered him in honor of his seventieth birthday, in November, 1901, when tributes were paid to him by Dr. James W. McLane, president of the College of Physicians and Surgeons; the Rev. Dr. Greer, rector of St. Bartholomew's Church; Judge Henry E. Howland, Dr. S. Weir Mitchell of Philadelphia, and Dr. George B. Shattuck of Boston.

With Dr. Thomas the love of the horse amounted to a passion, and he always drove and rode the finest animals. He was an enthusiastic equestrian, and attributed his fine health largely to his daily rides, which, when the weather forbade outdoor exercise, he took at the New York Riding Club, of which he was one of the originators and most prominent members. He was ever the courtly Southern gentleman, and his geniality and grace of manner rendered the noble traits of his character all the more attractive. No sketch of him would be complete without a reference to his summer life at Southampton, Long Island, where for many years, except when occasionally he went to Europe, he was accustomed to spend his vacation months. While there he threw off the cares of professional work, absolutely refusing all consultations, except it might be in some case of life and death, and enjoying to the full the delights of country life. With the members of his family or some guest he would gallop for miles over the wind-swept Shinnecock Hills in the morning, and in the afternoon take long drives. He was, in fact, the father of the summer colony at that charming seaside resort, and in its more primitive days built there a substantial cottage surrounded with double verandas, in the Southern style, the genial hospitality of which was celebrated in a novel, "Happy-go-lucky Hall," by the author of "Routledge." There he also took a warm interest in the affairs of the community, and was universally respected and beloved by the native inhabitants of the village, which is one of the oldest in the State.

At the time of his death he was professor emeritus of obstetrics and gynecology at the College of Physicians and Surgeons, consulting surgeon to the Woman's and French hospitals and consulting physician to the Nursery and Child's Hospital, the New York Infirmary for Women and Children, the New York Lying-in Hospital, and the New York Skin and Cancer Hospital. In 1899 he was one of the founders and incorporators of the Medical Association of the Greater City of New York. Dr. Thomas leaves a wife and two sons, the younger of whom, Theodore Gallard Thomas, Jr., is a student at Harvard.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 21, 1903.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Whooping cough.	Scarlet fever.
New York . .	3,785,156	1,445	404	18.65	14.53	3.11	.28	1.81
Chicago . .	1,885,000	627	180	23.59	22.95	1.27	.98	.98
Philadelphia .	1,378,037	—	—	—	—	—	—	—
St. Louis . .	618,481	—	—	—	—	—	—	—
Baltimore . .	633,712	210	60	30.00	18.81	2.38	.47	—
Cleveland . .	427,731	—	—	—	—	—	—	—
Buffalo . .	337,994	—	—	—	—	—	—	—
Pittsburg . .	351,745	184	74	29.34	24.46	4.34	4.34	.54
Cincinnati . .	335,140	—	—	—	—	—	—	—
Milwaukee . .	315,907	—	—	—	—	—	—	—
Washington .	295,103	—	—	—	—	—	—	—
Providence . .	181,230	68	20	20.58	20.58	1.47	7.37	1.47
Boston . .	603,163	197	57	30.30	25.33	3.04	2.53	1.00
Worcester . .	132,044	61	23	18.89	22.94	6.85	1.64	—
Fall River . .	115,549	58	28	17.24	31.03	1.73	—	—
Lowell . .	101,959	41	12	14.63	17.07	7.31	—	—
Cambridge . .	98,639	37	7	14.31	7.40	3.70	3.70	—
Lynn . .	72,497	39	13	7.69	—	—	2.56	—
Lawrence . .	69,766	28	10	26.09	17.39	—	4.35	—
Springfield .	69,339	17	1	11.76	5.88	—	—	—
Somerville . .	68,110	17	3	11.76	17.64	—	—	5.88
New Bedford .	67,198	33	17	21.31	33.33	6.06	3.03	6.06
Holyoke . .	49,286	17	8	17.64	11.76	—	—	—
Brockton . .	44,873	11	2	36.36	—	—	9.09	—
Haverhill . .	42,104	6	—	16.67	33.33	—	—	—
Newton . .	37,794	11	—	—	—	—	—	—
Salem . .	36,876	12	4	—	23.00	—	—	—
Malden . .	36,286	12	4	8.33	16.67	8.33	—	—
Chelsea . .	35,876	9	1	—	—	—	—	—
Fitchburg . .	35,089	—	—	—	—	—	—	—
Taunton . .	33,656	11	—	9.09	27.27	—	—	—
Everett . .	28,690	9	4	—	—	—	—	—
North Adams .	27,893	4	1	25.00	25.00	—	—	—
Gloucester . .	26,121	4	2	—	—	—	—	—
Quincy . .	26,043	11	2	27.27	18.18	9.09	9.09	—
Waltham . .	25,198	11	2	18.18	36.36	—	—	—
Brookline . .	22,608	9	2	33.33	22.22	—	—	—
Pittsfield . .	22,589	3	—	33.33	33.33	—	—	—
Chicopee . .	21,081	7	2	57.30	14.30	—	—	14.30
Medford . .	20,933	7	3	28.60	28.60	14.30	14.30	—
Northampton .	19,833	1	—	—	—	—	—	—
Beverly . .	15,302	6	3	16.67	33.33	—	—	—
Clinton . .	15,161	4	1	25.00	50.00	—	—	—
Leominster . .	14,906	—	—	—	—	—	—	—
Newburyport .	14,478	6	1	—	—	—	—	—
Woburn . .	14,300	6	1	50.00	—	—	—	—
Hyde Park . .	14,176	4	—	25.00	25.00	—	—	—
Adams . .	13,745	—	—	—	—	—	—	—
Attleboro . .	13,677	—	—	—	—	—	—	—
Marlboro . .	13,609	4	1	—	35.00	—	—	—
Melrose . .	13,600	4	—	—	—	—	—	—
Westfield . .	13,418	6	1	16.67	33.33	—	—	—
Milford . .	13,139	—	—	—	—	—	—	—
Revere . .	12,722	3	—	—	—	—	—	—
Framingham .	12,584	3	—	33.33	33.33	33.33	—	—
Peabody . .	12,179	—	—	—	—	—	—	—
Gardner . .	11,923	2	—	—	50.00	—	—	—
Weymouth . .	11,344	1	1	—	100.00	—	—	—
Southbridge .	11,268	3	—	—	—	—	—	—
Watertown . .	11,077	5	—	20.00	20.00	—	—	—
Plymouth . .	10,730	—	—	—	—	—	—	—

Deaths reported, 3,258; under five years of age, 955; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 688, acute lung diseases 589, consumption 355, scarlet fever 33, whooping cough 37, cerebrospinal meningitis 5, smallpox 9, erysipelas 7, measles 22, typhoid fever 44, diarrheal diseases 49, diphtheria and croup 88.

From whooping cough, New York 4, Chicago 6, Baltimore 1, Pittsburg 8, Providence 5, Boston 5, and Worcester, Cambridge, Lynn, Lawrence, New Bedford, Brockton, Quincy and Medford 1 each. From erysipelas, Chicago 3, Baltimore 2, Boston 1, North Adams 1. From smallpox, Chicago 3, Pittsburg 6.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,023, for the week ending Feb. 7, the death-rate was 17.9. Deaths reported, 5,164; acute diseases of the respiratory organs (London) 315, whooping cough 162, diphtheria 88, measles 92, smallpox 14, scarlet fever 51.

The death-rate ranged from 7.4 in Bournemouth to 31.3 in Hanley; London 17.6, West Ham 14.4, Brighton 17.9, Portsmouth 13.6, Southampton 15.6, Plymouth 19.1, Bristol 17.8, Birmingham 18.2, Leicester 18.9, Nottingham 19.5, Bolton 14.7, Manchester 23.0, Salford 19.6, Bradford 22.5, Leeds 18.7, Hull 16.3, New-Castle-on-Tyne 23.0, Cardiff 16.0, Rhondda 17.9, Liverpool 23.3, Smethwick 17.7, West Bromwich 19.6.

METEOROLOGICAL RECORD.

For the week ending Feb. 21, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.		Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 15	30.18	28	34	28	48	78	60	NW	W	6	O.	O.	O.
M. . 16	29.58	28	31	25	100	90	85	N	N	12	N.	N.	.58
T. . 17	29.34	20	30	9	100	59	80	N	W	23	N.	C.	1.46
W. . 18	29.92	8	14	3	78	74	74	SW	W	14	C.	C.	O.
T. . 19	30.39	8	12	4	67	58	60	W	W	12	C.	C.	O.
F. . 20	30.39	16	28	6	78	50	64	W	SW	8	O.	C.	O.
S. . 21	30.14	28	37	14	82	62	72	SW	S	8	O.	C.	O.
<i>Mean</i>	29.98		26	12		72							2.04

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. *Mean* for week.

RESIGNATION.

DR. WILLIAM L. RICHARDSON has resigned his position as visiting physician to the Massachusetts General Hospital.

APPOINTMENTS.

DR. CHARLES L. SOUDDER has been appointed a visiting surgeon to the Massachusetts General Hospital.

COLUMBUS HOSPITAL. — The following appointments were made at the meeting of the Medical Board of the Columbus Hospital, New York, held on Feb. 2: Dr. Frank Farquhar Ferguson was transferred from visiting to consulting physician to the hospital; Dr. Frederick C. Keeler, assistant attending physician, was appointed attending physician; and Dr. Henry Hazen was appointed attending physician in children's diseases.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A meeting of the Boston Society for Medical Improvement will be held at the Boston Medical Library, 8 The Fenway, on Monday, March 9, at 8.15 o'clock, P.M.

The committee appointed at the last meeting to consider the feasibility of the union of the Improvement Society with the Boston Medical Library will report in favor of such union, and will present a plan.

A. K. STONE, M.D., Secretary.

543 Boylston Street.

PHILADELPHIA ACADEMY OF SURGERY.

THE SAMUEL D. GROSS PRIZE, TWELVE HUNDRED DOLLARS. — This prize will be awarded on Jan. 1, 1906. The conditions annexed by the testator are that the prize "Shall be awarded every five years to the writer of the best original essay, not exceeding 150 printed pages, octavo in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and that on the title page it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 South 13th Street, Philadelphia," on or before Jan. 1, 1906.

Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one

year, and reserves the right to make no award if the essays submitted are not considered worthy of the prize.

JOHN B. ROBERTS, M.D.,
WILLIAM L. BODMAN, M.D.,
WILLIAM J. TAYLOR, M.D.,
Trustees.

PHILADELPHIA, Feb. 1, 1903.

RECENT DEATHS.

GEORGE CLARENCE GAGE, M.D., of New York, died on Feb. 22, at the age of fifty-two years. He was graduated from the College of Physicians and Surgeons, New York, in 1872, and up to the recent closing of that department was an assistant surgeon in the throat department of the New York Eye and Ear Infirmary.

SAMUEL C. HANFORD, M.D., of Hempstead, Long Island, N. Y., died on Feb. 24, in his eighty-first year. He was a native of Greenfield, Saratoga County, N. Y., and was graduated from the medical department of the University of New York in 1848. For nearly fifty years he practised in the Eastern District of Brooklyn, and a few years ago removed to Hempstead.

SAMUEL G. GOODE, M.D., of Jersey City, N. J., died on Feb. 24 of pneumonia. He was born in Jersey City in 1871.

CAPT. FRANKLIN M. KEMP of the medical department of the army, formerly of New York, died in the Philippines on Feb. 23 of cardiac disease. He entered the service as an assistant surgeon in October, 1896.

ALEXANDER STANLEY HANCOCK, M.D., of New York, died on Feb. 23 of laryngeal tuberculosis. He was born in Derbyshire, England, and was sixty-five years of age. He was graduated from Trinity College, Toronto, and received his medical degree in Buffalo. For five years he was a surgeon on the Allan Line steamships.

BOOKS AND PAMPHLETS RECEIVED.

Diseases of the Skin, their Description, Pathology, Diagnosis, and Treatment, with special reference to the skin eruptions of children and an analysis of fifteen thousand cases of skin disease. By H. Radcliffe-Crocker, M.D. (Lond.). F.R.C.P. Third edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1903.

A Textbook of Practical Medicine. By William Gilman Thompson, M.D. Second edition, revised and enlarged. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1902.

Diseases of Women. A Clinical Guide to their Diagnosis and Treatment. By George Ernest Herman, M.B. (Lond.). F.R.C.P. Revised edition. Illustrated. New York: William Wood & Co. 1903.

The Diagnosis and Modern Treatment of Pulmonary Consumption, with Special Reference to the Early Recognition and the Permanent Arrest of the Disease. By Arthur Latham, M.A., M.D. (Oxon.), M.A. (Cantab.) Illustrated. New York: William Wood & Co. 1903.

Physical Chemistry for Physicians and Biologists. By Dr. Ernst Cohen. Authorized translation from the German by Martin H. Fischer, M.D. Illustrated. New York: Henry Holt & Company. 1903.

A Manual of Practical Hygiene for Students, Physicians and Medical Officers. By Charles Harrington, M.D. Second edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

Transactions of the American Ophthalmological Society. Thirty-eighth Annual Meeting. Vol. IX, Part III. New London, Conn. 1902.

A Course in Botany and Pharmacognosy. By Henry Krämer, Ph.B., Ph.D. Illustrated. Philadelphia. 1902.

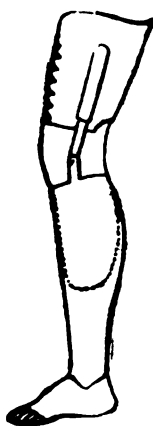
Quiz-Compend. No. 14. A Compend of Diseases of Children. Especially adapted for the Use of Medical Students. By Marcus P. Hatfield, A.M., M.D. Third edition, thoroughly revised, with a colored plate. Philadelphia: P. Blakiston's Son & Co. 1903.

Surgical Diseases of the Kidney and Ureter, including Injuries, Malformations and Displacements. By Henry Morris, M.A., M.B. (Lond.), F.R.C.S. In two volumes. Illustrated. London, Paris, New York and Melbourne: Cassell & Co., Ltd.; Chicago: W. T. Keener & Co.

Twelfth Annual Report of the State Board of Medical Examiners of New Jersey for the year 1902.

The Annual Reports of the Boston Floating Hospital for the season of 1902.

Atlas and Epitome of Human Histology and Microscopic Anatomy. By Dr. Johannes Sobotta. Edited, with extensive editions, by G. Carl Huber, M.D. Authorized translation from the German. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1903.



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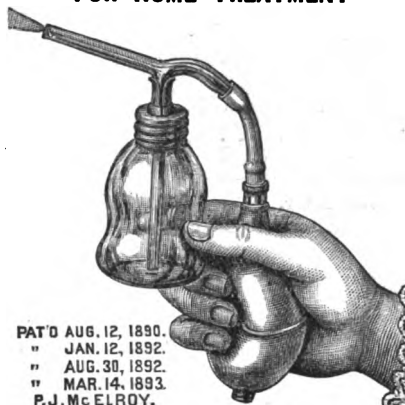
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The following are the Courses provided in the Graduate Department for 1902-1903.

No.	Subject.	Instructor.	Place.	Time.	Fee.
1	Anatomy of the Joints	Dr. Dwight	Medical School	Special *	\$25
2	Dissection Courses	Dr. J. Warren	Medical School	After Nov. 1	20
3	Special Anatom. Instruction	Dr. Dwight	Medical School	Special *	Special *
4	Histology and Microscopy	Dr. F. T. Lewis	Medical School	Feb.	25
5	Elem. Human Embryology	Drs. Bremer and Woods	Medical School	Feb.—June	25
6	Advanced Embryology	Drs. Minot, Bremer, Lewis	Medical School	Feb.—June	75
† 7	Physiology	Dr. W. T. Porter	Medical School	Special *	Special *
† 8	Toxicology and Medico-Legal Examination of Blood	Dr. Wood	Medical School	Oct.—Jan.	30
† 9	Clinical Examination of Urine	Drs. Wood and Emerson	Medical School	Oct.—Jan.	30
† 10	Clinical Haematology and Examination of Gastric Contents	Dr. Hewes	Medical School	Oct.—Jan.	30
† 11	Physiological Chemistry	Dr. Pfaff	Medical School	Special *	Special *
12	Path. and Phys. Chemistry	Dr. Emerson	Med. Sch. or Boston City H.	Special *	Special *
† 13	Bacteriology	Dr. Ernst	Medical School	Special *	25
14	Practical Pathology	Dr. Councilman	Medical School	Special *	30-40
15	Pathological Histology	Dr. Councilman	Medical School	Special *	30
16	Pathological Anatomy	Dr. Magrath	Medical School	Special *	25
17	Neuropathology	Dr. Taylor	Medical School	Special *	25
18	Advanced Neuropathology	Dr. Taylor	Medical School	Special *	75-125
19	Surgical Pathology	Dr. Nichols	Medical School	April	25
20	Diagnosis of New Growths	Dr. Whitney	Mass. General Hospital	Special *	15
† 21	Comparative Pathology	Dr. Smith	Bussey Institution	Oct.—June	Special *
22	Clinical Medicine	Dr. Vickery	Mass. General Hospital	Oct.	15
† 23	Clinical Diagnosis	Dr. J. M. Jackson	Mass. General Hospital	Nov.—Feb.	15
† 24	Infectious Diseases	Dr. McCollom	Boston City Hospital	Oct., Nov.	25
† 25	Intubation	Dr. McCollom	Boston City Hospital	Special *	25
26	Sputum Analysis	Dr. W. H. Smith	Mass. General Hospital	Nov., Dec., Jan.	15
27	Clinical Medicine	Dr. Joslin	Boston City Hospital	April—May	25
28	Surgical Research			Special	Special *
29	Special Surgical Work			Special	Special *
30	Minor Surgery	Dr. Lund	Boston City Hospital	April—May	20
† 31	Minor Surgery	Dr. J. B. Blake	Boston City Hospital	Nov.—May	20
32	Clinical and Operative Surgery	Drs. Warren, Porter, Beach	Mass. General Hospital	Oct.—Feb.	30
33	Clinical Surgery	Dr. M. H. Richardson	Mass. General Hospital	Feb., May	
34	Clinical Surgery	Dr. Mumford	Mass. General Hospital	Feb., March, April, May	25
35	Minor Surgery	Dr. Mumford	Mass. General Hospital	Oct.—Jan.	25
36	Clinical, Operative, Genito-urinary, Pathological and Minor Surgery	Drs. Monks and Thorndike	Boston City Hospital	Oct., Nov., Jan., Feb.	25
37	Clinical and Operative Surgery	Drs. Munro and Lund	Boston City Hospital	Oct., Nov.	25
38	Genito-Urinary Surgery	Dr. Thorndike	Boston City Hospital	Oct.—Nov.	25
39	Fractures	Dr. Scudder	Mass. General Hospital	Oct., Nov.	20
40	Surgical Diagnosis	Dr. Scudder	Mass. General Hospital	Nov.—Dec.	20
41	Genito-Urinary Surgery	Dr. Scudder	Mass. General Hospital	Jan.—Feb.	20
42	After Treatment	Dr. Scudder	Mass. General Hospital	Feb., March	20
43	Genito-Urinary Surgery	Dr. Watson	Boston City Hospital	April, May	20
44	Surgical Diagnosis	Dr. C. A. Porter	Mass. General Hospital	Oct.—Jan.	15
45	Minor Surgery	Dr. Balch	Mass. General Hospital	Feb., March	20
46	Minor Surgery	Dr. Balch	Mass. General Hospital	April, May	20
47	Clinical and Operative Surgery	Dr. Cobb	Mass. General Hospital	Oct.—Nov.	30
† 48	Orthopedic Surgery	Dr. Bradford	Children's Hospital	Nov.	10
49	Clinical Obstetrics	Dr. W. L. Richardson	Boston Lying-in Hospital	Nov., Jan., May—June	25
50	Clinical Obstetrics	Dr. C. M. Green	Boston Lying-in Hospital	Feb., March, April	25
51	Clinical Obstetrics	Dr. Higgins	Boston Lying-in Hospital	Oct.	25
52	Clinical Obstetrics	Drs. Newell, Swain, and Friedman	Boston Lying-in Hospital	Oct.—May	25
53	Operative Obstetrics	Dr. C. M. Green	Medical School	Special *	25
54	Operative Obstetrics	Dr. Higgins	Medical School	Special	25
55	Gynecology	Dr. Haven	Boston City Hospital	Jan., Feb., March	25
56	Gynecology	Dr. C. M. Green	Boston City Hospital	Oct., Nov., Dec.	25
57	Gynecology	Dr. Storer	Carney Hospital	Oct., Nov., Dec., April, May, June	25
58	Gynecology	Dr. Storer	Boston Dispensary	Jan., Feb., March	25
59	Gynecology	Dr. Storer	St. Elizabeth's Hospital	April, May, June	25
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† 61	Pediatrics	Dr. Craigin	Children's Hospital	Oct., Nov.	20
† 62	Pediatrics	Dr. Craigin	Children's Hospital	Nov., Dec.	20
† 63	Pediatrics	Dr. Buckingham	Children's Hospital	Jan., Feb.	20
† 64	Pediatrics	Dr. Morse	Infants' Hospital	April, May	20
† 65	Pediatrics	Dr. Morse	Infants' Hospital	March, April	20
66	Dermatology	Dr. Bowen	Mass. General Hospital	Oct.—June	25
67	Syphilis	Dr. Post	Boston Dispensary	April, May, June	25
† 68	Advanced Neurology	Dr. Putnam	Mass. General Hospital	Special *	Special *
† 69	Neurology	Dr. Knapp	Boston City Hospital	Feb., March	20
† 70	Neurology	Dr. Knapp	Boston City Hospital	April, May	20
† 71	Neurology	Dr. Walton	Mass. General Hospital	March—April	20
† 72	Psychiatry	Dr. Cowles	McLean Hospital	Special *	25
† 73	Otology	Dr. Crockett	Eye and Ear Infirmary	Feb.—April	25
† 74	Otology	Dr. Hammond	Eye and Ear Infirmary	Nov.—Jan.	25
† 75	Anatomy of the Ear	Dr. Hammond	Medical School	Special *	25
† 76	Clinical Ophthalmology	Dr. Wadsworth	Eye and Ear Infirmary	Feb., March	25
† 77	Ophthalmology	Dr. Standish	Eye and Ear Infirmary	April	25
† 78	Ophthalmology	Dr. Quackenbush	Eye and Ear Infirmary	Oct.—Nov.	20
† 79	Ophthalmology	Dr. Jack	Eye and Ear Infirmary	Oct.—Nov.	20
† 80	Rhinology and Laryngology	Dr. DeBlois	Boston City Hospital	Jan., Feb., March	20
† 81	Rhinology and Laryngology	Dr. Farlow	Boston City Hospital	April, May	20
† 82	Rhinology and Laryngology	Dr. Coolidge	Mass. General Hospital	Feb., March	20
† 83	Hygiene	Dr. Harrington	Medical School	Special *	25
84	Disinfection	Dr. Harrington	Medical School	Special *	20
85	Analysis of water, food, etc.	Dr. Harrington	Medical School	Special *	20
86	Pharmacology	Drs. Pfaff and Vejux-Tyrodé	Medical School	Special *	Special *

* To be arranged with instructor.

† Women admitted.

‡ Women admitted conditionally.

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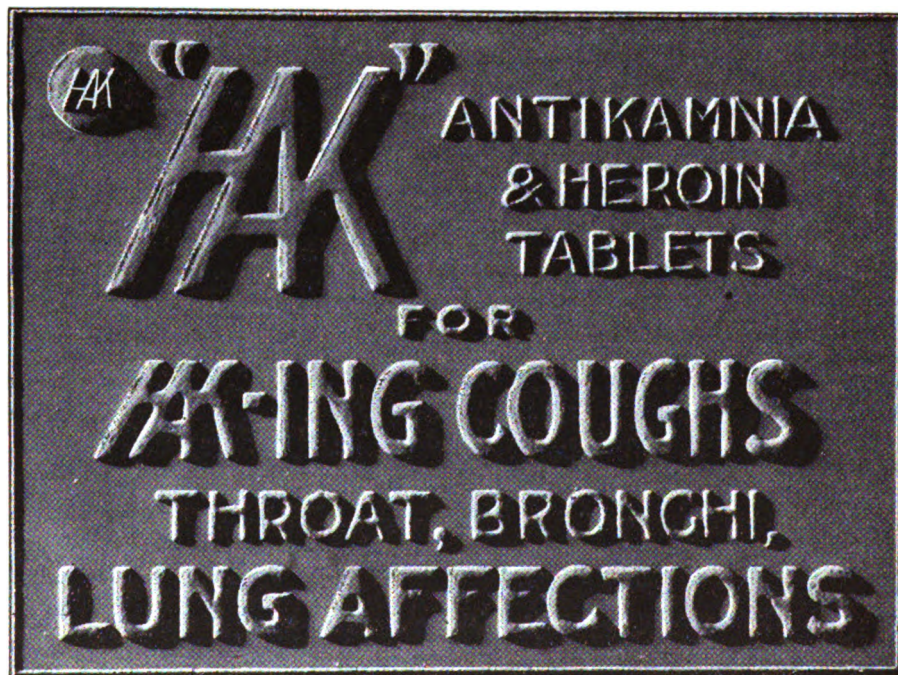
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Address.

ON THE EDUCATIONAL VALUE OF THE MEDICAL SOCIETY.¹

BY WILLIAM OSLER, M.D., BALTIMORE, MD.,

Professor of Medicine, Johns Hopkins University.

As the Autocrat remarks :

"Little of all we value here
Wakes on the morn of its hundredth year."

All the more reason to honor such occasions as the present in an appropriate manner. The tribute of words that I gladly bring—and that you may take as expressing the sentiments of your brethren at large—necessarily begins with congratulations that your society has passed into the select group of those that have reached a century of existence. But congratulations must be mingled with praise of the band of noble men who, in 1803, made this gathering possible. It is true they did but follow the lead of their colleagues of Litchfield County and their own example when, in 1784, the physicians of this county organized what is now one of the oldest medical societies in the land. In the introduction to the volume of "Transactions of this Society," published in 1788, the following brief statements are made as to the objects of the organization, which may be transposed from the parent to the child, and which I quote in illustration of the character of the men and as giving in brief the chief uses of a medical society: "This society was formed on the most liberal and generous principles, and was designed first to lay a foundation for that unanimity and friendship which is essential to the dignity and usefulness of the profession; to accomplish which, they resolved, secondly, to meet once in three months; thirdly, that in all cases where counsel is requisite they will assist each other without reserve; fourthly, that all reputable practitioners in the county, who have been in the practice for one year or more, may be admitted members; fifthly, that they will communicate their observations on the air, seasons and climate, with such discoveries as they may make in physic, surgery, botany or chemistry, and deliver faithful histories of the various diseases incident to the inhabitants of this country, with the mode of treatment and event in singular cases; sixthly, to open a correspondence with the medical societies in the neighboring states and in Europe, for which purpose they have a standing committee of correspondence; seventhly, to appoint a committee for the purpose of examining candidates for the profession, and to give certificates to the deserving." Changed conditions have changed some of these objects, but in the main they hold good today.

Some of the paragraphs have suggested to me the subject of my address—the educational value of the medical society. There are many problems and difficulties in the education of a medical student, but they are not more difficult than the question of the continuous education of the general practitioner. Over the one we have some control, over the other, none. The university and the

state board make it certain that the one has a minimum, at least, of professional knowledge, but who can be certain of the state of that knowledge of the other in five or ten years from the date of his graduation? The specialist may be trusted to take care of himself—the conditions of his existence demand that he shall be abreast of the times; but the family doctor, the private in our great army, the essential factor in the battle, should be carefully nurtured by the schools and carefully guarded by the public. Humanly speaking, with him are the issues of life and death, since upon him falls the grievous responsibility in those terrible emergencies which bring darkness and despair to so many households. No class of men needs to call to mind more often the wise comment of Plato that education is a life-long business. The difficulties are partly adherent to the subject, partly have to do with the individual and his weakness. The problems of disease are more complicated and difficult than any others with which the trained mind has to grapple; the conditions in any given case may be unlike those in any other; each case, indeed, may have its own problem. Law, constantly looking back, has its forms and procedures, its precedents and practices. Once grasped, the certainties of divinity make its study a delight and its practice a pastime; but who can tell of the uncertainties of medicine as an art? The science on which it is based is accurate and definite enough; the physics of a man's circulation are the physics of the water works of the town in which he lives, but once out of gear, you cannot apply the same rules for the repair of the one as of the other. Variability is the law of life, and as no two faces are the same, so no two bodies are alike, and no two individuals react alike and behave alike under the abnormal conditions which we know as disease. This is the fundamental difficulty in the education of the physician, and one which he may never grasp, or he takes it so tenderly that it hurts instead of boldly accepting the axiom of Bishop Butler, more true of medicine than of any other profession: "Probability is the guide of life." Surrounded by people who demand certainty, and not philosopher enough to agree with Locke that "*Probability supplies the defect of our knowledge and guides us when that fails and is always conversant about things of which we have no certainty,*" the practitioner too often gets into a habit of mind which resents the thought that opinion, not full knowledge, must be his stay and prop. There is no discredit, though there is at times much discomfort, in this everlasting *perhaps* with which we have to preface so much connected with the practice of our art. It is, as I said, inherent in the subject. Take in illustration an experience of last week. I saw a patient with Dr. Bolgiano who presented marked pulsation to the left of the sternum in the second, third and fourth interspaces, visible even before the night-dress was removed, a palpable impulse over the area of pulsation, flatness on percussion, accentuated heart sounds and a soft systolic bruit. When to this were added paralysis of the left recurrent laryngeal nerve, smallness of the radial pulse on the left side and tracheal tugging, there is not one of you who would not make, under such circumstances, the diagnosis of aneu-

¹ Remarks made on the occasion of the centennial celebration of the New Haven Medical Association, New Haven, Jan. 6, 1906.

risk of the aorta. Few of us, indeed, would put in the *perhaps*, or think of it as a probability with such a combination of physical signs, and yet the associate conditions which had been present — a small primary tumor of the left lobe of the thyroid, with secondary nodules in the lymph glands of the neck and involvement of the mediastinum and metastases in the brain with optic neuritis — left no question that the tumor causing the remarkable intrathoracic combination was not aneurismal but malignant. Listen to the appropriate comment of the Father of Medicine, who twenty-five years ago had not only grasped the fundamental conception of our art as one based on observation, but had labored also through a long life to give to the profession which he loved the saving health of science — listen, I say, to the words of his famous aphorism: "*Experience is fallacious and judgment difficult!*"

But the more serious problem relates to the education of the practitioner after he has left the schools. The foundation may not have been laid upon which to erect an intellectual structure, and too often the man starts with a total misconception of the prolonged struggle necessary to keep the education he has, to say nothing of bettering the instruction of the schools. As the practice of medicine is not a business and can never be one,² the education of the heart — the moral side of the man — must keep pace with the education of the head. Our fellow creatures cannot be dealt with as man deals in corn and coal; "the human heart by which we live" must control our professional relations. After all, the personal equation has most to do with success or failure in medicine, and in the trials of life the fire which strengthens and tempers the metal of one may soften and ruin another. In his philosophy of life the young doctor will find Rabbi Ben Ezra³ a better guide, with his stimulating

"Then, welcome each rebuff
That turns earth's smoothness rough,
Each sting that bids nor sit, nor stand but go!"

than Omar, whose fatalism, so seductive in Fitzgerald's verses, leaves little scope for human effort.

For better or worse, there are few occupations of a more satisfying character than the practice of medicine, if a man can but once get orientated and bring to it the philosophy of honest work, the philosophy which insists that we are here, not to get all we can out of the life about us, but to see how much we can add to it. The discontent and grumblings which one hears have their source in the man more often than in his environment. In the nature of the material in which we labor and of which, by the way, we are partakers, there is much that

²In every age there have been Ellijahs ready to give up in despair at the progress of commercialism in the profession. Garth says in 1699 (*Dispensary*),

"How sickening Physick hangs her pensive head
And what was once a Science, now 's a Trade."

Of medicine, many are of the opinion expressed by one of Aken-side's disputants at Tom's Coffee House, that the ancients endeavored to make it a science and failed, and the moderns to make it a trade and have succeeded. Today the cry is louder than ever, and in truth there are grounds for alarm; but, on the other hand, we can say to the Ellijahs that there are many more than 7,000 left who have not bowed the knee to this Baal, but who practice *caute et probe*.

³See Browning's poem. A good little edition has just been issued (with an introduction by William Adams Slade) which I commend to young graduates.

could be improved, but, as Mrs. Poyser remarks, we must accept men as the Lord made them, and not expect too much. But let me say this of the public: it is rarely responsible for the failures in the profession. Occasionally a man of superlative merit is neglected, but it is because he lacks that most essential gift, the knowledge how to use his gifts. The failure in 99% of the cases is in the man himself; he has not started right, the poor chap has not had the choice of his parents, or his education has been faulty, or he has fallen away to the worship of strange gods, Baal or Ashtoreth, or worse still, Bacchus. But after all the killing vice of the young doctor is intellectual laziness. He may have worked hard at college, but the years of probation have been his ruin. Without specific subjects upon which to work, he gets the newspaper or the novel habit, and fritters his energies upon useless literature. There is no greater test of a man's strength than to make him mark time in the "stand and wait" years. Habits of systematic reading are rare, and are becoming more rare, and five or ten years from his license, as practice begins to grow, may find the young doctor knowing less than he did when he started and without any fixed educational purpose in life.

Now here is where the medical society may step in and prove his salvation. The doctor's post-graduate education comes from patients, from books and journals and from societies, which should be supplemented every five or six years by a return to a post-graduate school to get rid of an almost inevitable slovenliness in methods of work. Of his chief teachers, his patients, I cannot here speak. Each case has its lesson — a lesson that may be, but is not always, learnt, for clinical wisdom is not the equivalent of experience. A man who has seen 500 cases of pneumonia may not have the understanding of the disease which comes with an intelligent study of a score of cases, so different are knowledge and wisdom, which, as the poet truly says, "far from being one have oftentimes no connection." Nor can I speak of his books and journals, but on such an occasion as the present it seems appropriate to say a few words on the *educational value of the medical society*.

The first, and in some respects the most important, function is that mentioned by the wise founders of your parent society — to lay a foundation for that unity and friendship which is essential to the dignity and usefulness of the profession. Unity and friendship! How we all long for them, but how difficult to attain! Strife seems rather to be the very life of the practitioner, whose warfare is incessant against disease and against ignorance and prejudice, and, sad to have to admit, he too often lets his angry passions rise against his professional brother. The quarrels of doctors make a pretty chapter in the history of medicine. Each generation seems to have had its own. The Coans and the Cnidians, the Arabians and the Galenists, the humoralists and the solidists, the Brunonians and the Broussaissians, the homeopaths and the regulars, have, in different centuries, rent the robe of Æsculapius. But these larger quarrels are becoming less and less intense, and in the last century no new one of moment sprang up, while it is easy

to predict that in the present century, when science has fully leavened the dough of homeopathy, the great breach of our day will be healed.⁴ But in too many towns and smaller communities miserable factions prevail and bickerings and jealousies mar the dignity and usefulness of the profession. So far as my observation goes, the fault lies with the older men. The young fellow, if handled aright and made to feel that he is welcomed and not regarded as an intruder to be shunned, is only too ready to hold out the hand of fellowship. The society comes in here as professional cement. The meetings in a friendly social way lead to a free and open discussion of differences in a spirit that refuses to recognize differences of opinion on the non-essentials of life as a cause of personal animosity or ill feeling. An attitude of mind habitually friendly, more particularly to the young man, even though you feel him to be the David to whom your kingdom may fall, a little of the old-fashioned courtesy which makes a man shrink from wounding the feelings of a brother practitioner,—in honor preferring one another; with such a spirit abroad in the society and among its older men, there is no room for envy, hatred, malice or any uncharitableness. It is the confounded tales of patients that so often set us by the ears, but if a man makes it a rule never under any circumstances to believe a story told by a patient to the detriment of a fellow-practitioner,—even if he knows it to be true!—and though the measure he metes may not be measured to him again, he will have the satisfaction of knowing that he has closed the ears of his soul to ninety-nine lies, and to have missed the hundredth truth will not hurt him. Most of the quarrels of doctors are about non-essential, miserable trifles and annoyances,—the pin pricks of practice,—which would sometimes try the patience of Job, but the good-fellowship and friendly intercourse of the medical society should reduce these to a minimum.

The well-conducted medical society should represent a clearing house, in which every physician of the district would receive his intellectual rating, and in which he could find out his professional assets and liabilities. We doctors do not "take stock" often enough, and are very apt to carry on our shelves stale, out-of-date goods. The society helps to keep a man "up to the times," and enables him to refurnish his mental shop with the latest wares. Rightly used, it may be a touch-stone to which he can bring his experiences to the test and save him from falling into the rut of a few sequences. It keeps his mind open and receptive, and counteracts that tendency to premature senility which is apt to overtake a man who lives in a routine. Upon one or two specially valuable features of the society I may dwell for a moment or two.

In a city association the demonstration of instructive specimens in morbid anatomy should form a special feature of the work. After all has been

done, many cases of great obscurity in our daily rounds remain obscure, and as postmortems are few and far between, the private practitioner is at a great disadvantage, since his mistakes in diagnosis are less often corrected than are those of hospital physicians. No more instructive work is possible than carefully demonstrated specimens illustrating disturbance of function and explanatory of the clinical symptoms. It is hard in this country to have the student see enough morbid anatomy, the aspects of which have such an important bearing upon the mental attitude of the growing doctor. For the crass therapeutic credulity, so widespread today, and upon which our manufacturing chemists wax fat, there is no more potent antidote than the healthy scepticism bred of long study in the post-mortem room. The new pathology, so fascinating and so time-absorbing, tends, I fear, to grow away from the old morbid anatomy, a training in which is of such incalculable advantage to the physician. It is a subject which one must learn in the medical school, but the time assigned is rarely sufficient to give the student a proper grasp of the subject. The younger men should be encouraged to make the exhibition of specimens part of the routine work of each meeting. Something may be learned from the most ordinary case if it is presented with the special object of illustrating the relation of disturbed function to altered structure. Of still greater educational value is the clinical side of the society. No meeting should be arranged without the presentation of patients, particularly those illustrating rare and unusual forms of disease. Many diseases of the skin and of the joints, a host of nervous affections, and many of the more remarkable of general maladies, as myxedema, cretinism, achondroplasia, etc., are seen so rarely and yet are so distinctive, requiring only to be seen to be recognized, that it is incumbent upon members to use the society to show such cases. A clinical evening devoted to these rarer affections is of very great help in diffusing valuable knowledge. The importance of a clinical demonstration was never better illustrated than at the International Congress in London in 1881, when Dr. Ord and others presented one morning at the Clinical Museum a group of cases of myxedema. There were men from all parts of the world, and the general recognition of the disease outside of England dates from that meeting. The physiognomy of disease is learned slowly, and yet there are a great many affections which can be recognized, sometimes at a glance, more often by careful inspection, without any history. The society should be a school in which the scholars teach each other, and there is no better way than by the demonstration of the more unusual cases that happen to fall in your way. I have gone over my history cards of private patients brought or sent to me by last-year physicians, in which the disease was not diagnosed though recognizable *de visu*. Gout, pseudo-hypertrophic muscular paralysis, hysterical lordosis, spondylitis deformans, preataxic tabes (myosis, ptosis, etc.), Graves' disease, Parkinson's disease, anorexia nervosa, Raynaud's disease, pernicious anemia, spastic diplegia, spastic hemiplegia and cyanosis of chronic emphysema were on the list. Some of these are rare diseases, but at an active society in

⁴ As an indication of the leaven which is at work in our brethren of the homeopathic school, I may call your attention to the work on Clinical Medicine (Diagnosis), by Dr. Clarence Bartlett of the Hahnemann Medical College, Philadelphia. Accurate, thoroughly scientific and fully up to date, the students fed on such a diet will not be content with the husks of Hahnemann any more than the students of our regular schools are with the husks of Brown or Broussais, but they will practise as rational physicians, untrammelled by the shibboleth of any school.

the course of a few years every one of them could be demonstrated.

The presentation of the histories of cases may be made very instructive, but this is often a cause of much weariness and dissatisfaction. A brief oral statement of the special features of a case is much to be preferred to a long, written account. The protocol or daily record of a long case should never be given in full. The salient points should be brought out, particularly the relation the case bears to the known features of the disease and to diagnosis and treatment. The volume of the Transactions of the New Haven County Medical Society, 1788, contains many admirably reported cases. I select one for special comment, as it is, so far as I know, the first case on record of a most remarkable disease, to which much attention has been paid of late,—the hypertrophic stenosis of the pylorus in children (see full discussion in the *Lancet* of Dec. 20, 1902). Dr. Hezekiah Beardsley reports a *Case of Schirrhosis of the Pylorus of an Infant*. Every feature of the disease as we know it now is noted—the constant puking, the leanness, the wizened, old look of the child are well described, and the diagnosis was made four months before death! The postmortem showed a dilated and hypertrophied stomach and “the pylorus was invested with a hard, compact substance or schirrosity which so completely obstructed the passage into the duodenum as to admit with the greatest difficulty the finest fluid.” If other men had been as accurate and careful as Dr. Beardsley, and if other societies had followed the good example set so early by the New Haven County Medical Association, not only would this rare disease have been recognized, but by the accumulation of accurate observations many another disease would have yielded its secret. But it illustrates the old story—there is no more difficult art to acquire than the art of observation, and for some men it is quite as difficult to record an observation in brief and plain language.

In no way can a society better help in the education of its members than in maintaining for them a good library, and I am glad to know that this is one of your functions. It is most gratifying to note the growing interest in this work in all parts of the country. In the last number of the *Bulletin* of the Association of Medical Librarians there is a list of twenty-five societies with medical libraries. An attractive reading-room, with the important weekly journals, and with shelves stocked with the new books in different departments, becomes an educational center in which the young man can keep up his training and to which the older practitioner can go for advice when he is in despair and for reassurance when he is in doubt. The self-sacrifice necessary to establish and maintain such a library does good to the men who take part in it; harmony is promoted, and, in the words of your fathers, the dignity and usefulness of the profession are maintained.

Why is it that a large majority of all practitioners are not members of a medical society? Dr. Simmons estimates that there are 77,000 physicians in the United States who do not belong to any medical society whatever! In part this is due to apathy of the officers and failure to present an attractive program, but more often the fault is in the men. Per-

haps given over wholly to commercialism a doctor feels it a waste of time to join a society, and so it is if he is in the profession only for the money he can get out of patients without regard to the sacred obligation to put himself in the best possible position to do the best that is known for them. More frequently, I fear, the “dollar-doctor” is a regular frequenter of the society, knowing full well how suicidal in the long run is isolation from the general body of the profession. The man who knows it all and gets nothing from the society reminds one of that little dried-up miniature of humanity, the prematurely senile infant, whose tabetic marasmus has added old age to infancy. Why should he go to the society and hear Dr. Jones on the gastric relations of neurasthenia when he can get it all so much better in the works of Einhorn or Ewald. He is weary of seeing appendices, and there are no new pelvic viscera for demonstration. It is a waste of time, he says, and he feels better at home, and perhaps that is the best place for a man who has reached this stage of intellectual stagnation.

Greater sympathy must be felt for the man who has started all right and has worked hard at the societies, but as the rolling years have brought ever-increasing demands on his time, the evening hours find him worn out yet not able to rest, much less to snatch a little diversion or instruction in the company of his fellows whom he loves so well. Of all men in the profession the forty-visit-a-day man is the most to be pitied. Not always an automaton, he may sometimes by economy of words and extraordinary energy do his work well, but too often he is the one above all others who needs the refreshment of mind and re-creation that is to be had in a well-conducted society. Too often he is lost beyond all recall, and, like Ephraim joined to his idols, we may leave him alone. Many good men are ruined by success in practice, and need to pray the prayer of the Litany against the evils of prosperity. It is only too true, as you know well, that a most successful—as the term goes—doctor may practice with a clinical slovenliness that makes it impossible for that kind old friend, Dame Nature, to cover his mistakes. A well-conducted society may be of the greatest help in stimulating the practitioner to keep up habits of scientific study. It seems a shocking thing to say, but you all know it to be a fact that many, very many men in large practice never use a stethoscope, and as for a microscope, they have long forgotten what a leucocyte or a tube cast looks like. This in some cases may be fortunate, as imperfect or half knowledge might only lead to mistakes, but the secret of this neglect of means of incalculable help is the fact that he has not attained the full and enduring knowledge which should have been given to him in the medical school. It is astonishing with how little outside aid a large practice may be conducted, but it is not astonishing that in it cruel and unpardonable mistakes are made. At whose door so often lies the responsibility for death in cases of empyema but at that of the busy doctor, who has not time to make routine examinations, or who is “so driven” that the urine of his scarlet fever or puerperal patients is not examined until the storm has broken?

But I hear it sometimes said you cannot expect the general practitioner, particularly in country districts, to use the microscope and the stethoscope—these are refinements of diagnosis. They are not! They are the essential means which can be used and should be used by every intelligent practitioner. In our miserable, antiquated system of teaching we send our graduates out wholly unprepared to make a rational diagnosis, but a man who is in earnest—and, thank heaven! most of the young men today in the profession are in earnest—can supply the defects in his education by careful study of his cases, and can supplement the deficiency by a post-graduate course. A room fitted as a small laboratory, with the necessary chemicals and a microscope, will prove a better investment in the long run than a static machine or a new-fangled air-pressure spray apparatus.

It is not in the local society only that a man can get encouragement in his day's work and a betterment of mind and methods. Every practitioner should feel a pride in belonging to his state society, and should attend the meetings whenever possible, and gradually learn to know his colleagues, and here let me direct your attention to an important movement on the part of the American Medical Association, which has for its object the organization of the profession throughout the entire country. This can be accomplished only by a uniformity in the organization of the state societies, and by making the county society the unit through which members are admitted to the state and national bodies. Those of you interested will find very instructive information on this subject in the *Journal* of the association in a series of papers by Dr. Simmons, the editor, which have been reprinted in pamphlet form. As now managed, with active sections conducted by good men from all parts of the country, the meeting of the National Association is in itself a sort of brief post-graduate course. Those of you at the receptive age who attended the Saratoga meeting last June must have been impressed with the educational value of such a gathering. The Annual Museum was itself an important education in certain lines, and the papers and discussions in the various sections were of the greatest possible value. But I need say no more to this audience on the subject of medical societies; you of New England have not "forsaken the gathering of yourselves together as the manner of some is," but have been an example to the whole country.

In the dedication of his "Holy War," Thomas Fuller has some very happy and characteristic remarks on the bounden duty of a man to better his heritage of birth or fortune, and what the father found glass and made crystal, he urges the son to find crystal and make pearl. Your heritage has been most exceptional, and, I believe, from all that I know of the profession in this city and State, that could your fathers return they would say that of their crystal you had made pearl. One cannot read their history as told by Bronson, or as sketched by your distinguished citizen, my colleague, Dr. Welch, without a glow of admiration for their lofty ideals, their steadfastness and devotion, and for their faith in the profession which they loved. The times have changed, conditions of practice have altered and are altering rapidly, but when such a celebration takes

us back to your origin in simpler days and ways, we find that the ideals which inspired them are ours today—ideals which are ever old, yet always fresh and new, and we can truly say in Kipling's words: "The men bulk big on the old trail, our own trail, the out trail,
They're God's own guides on the Long Trail, the trail that is always new."

Original Articles.

LIMITATIONS OF THE UHLENHUTH TEST FOR THE DIFFERENTIATION OF HUMAN BLOOD.¹

BY A. E. AUSTIN, M.D., BOSTON.

SINCE the discovery of Uhlenhuth that a rabbit or guinea pig injected several times with human blood would give a serum containing a precipitin for human blood, many suggestions have been made for procuring a constant and permanent preparation of this humanized rabbit serum. It has been suggested that strips of filter paper could be soaked in the serum and preserved dry. Ziemke precipitated the globulin of the humanized blood by magnesium sulphate, and redissolved the dry precipitate as he wished to use it, but decided that its efficacy was very much diminished. Chloroform was suggested by the discoverer of the test as a preservative, but decided by the latter author to weaken decidedly the activity of the serum. Owing to the difficulty of always procuring fresh blood for the injection of animals, this ability of preserving the precipitin once formed becomes a matter of much importance, and if it can be acquired adds very much to the efficacy and usefulness of the test. My interest was aroused by these efforts to preserve this precipitin, and in order to carry this matter further, a number of rabbits were injected exactly according to the directions of Uhlenhuth, when, much to my surprise, I found that the test was not as fully applicable as had been represented, and that only under the most limited conditions could it be employed; that other fluids of the human body, like effusions and exudates, were of little value, and that the fluid from placentas could only be used when it was strictly fresh, and that much longer time and more repeated injections were necessary than we had been led to suppose from the first oversanguine reports of the earlier investigators.

Perhaps it would be wiser, however, to describe the experiments which were performed, and then return to the discussion of results.

EXPERIMENT I. A black rabbit of 2,505 gm. weight was injected Nov. 15 with 10 cc. of a pleuritic fluid, removed by Dr. Knowlton on Nov. 10, which was suspected to be of tuberculous origin, and which had been carefully preserved on ice. This injection was made into the cellular tissue of the flank, avoiding the peritoneal cavity. On Nov. 21 a similar injection was made, and on Nov. 26 another of similar amount.

On Nov. 29, 10 cc. of blood were withdrawn from the jugular vein, allowed to stand on ice until the serum had been well squeezed out of the clot, and the serum, which was slightly blood-stained, used for the tests. The rabbit did not seem to be injured in any way, nor did it acquire tuberculosis. Three blood stains were prepared on filter paper: (a) from blood of a subject in the dissect-

¹ From the Medical Chemistry Laboratory, Tufts College.

ing room, which, of course, had been injected with preserving fluid; (b) from fresh ox blood, and (c) from fresh human blood. All these were soaked out with .8% sodium chloride solution for a period of twenty-four hours, so that after filtration into three test tubes there were 10 cc. of each. To each one of these five drops of the humanized rabbit serum were added. There was no precipitate in either three hours after, but twenty-four hours after in all of the tubes, which in the meantime had been kept on ice, there was a perceptible precipitate.

EXPERIMENT II. Blood was obtained from a human placenta which, while not strictly fresh, had been kept on ice for a few days, and had no perceptible odor, by squeezing in a hand press, and enough was secured for three injections of 10 cc. each. These were given on Jan. 11, 16 and 20, while the 10 cc. of blood were taken from the animal on Jan. 25. At that time blood from the above placenta was mixed with four volumes of physiological salt solution, centrifuged for five minutes, and the clear supernatant fluid poured off for use. Four test tubes of this were prepared, containing respectively 5, 6, 7 and 8 cc., and to each of these one drop of the humanized blood was added. There was a cloudiness in all in twenty-five minutes, which in two hours was changed to a precipitate. An old blood stain from a cadaver, extracted with the same salt solution, gave a precipitate with a drop of this serum in thirty minutes. Of stains of fresh cat's, dog's, human and rabbit's blood extracted in the same way, both the rabbit's and the human blood gave precipitates with the rabbit serum in ten minutes.

EXPERIMENT III. A brown rabbit, whose weight was 1,320 gm., was injected Jan. 23 with 10 cc. hydrocele fluid, obtained through the courtesy of Dr. Gardiner W. Allen, which act was repeated on Jan. 29, and again Feb. 3. On Feb. 8 the animal was bled to the extent of 10 cc., which was placed on ice and allowed to coagulate, as usual. With the serum the following tests were made: 0.1 cc. of a mixture of saliva and blood, obtained from a tonsil operation, was mixed with 20 cc. .8% salt solution, and the whole centrifuged. In each of two tubes 5 cc. of this clear supernatant fluid was placed, and in a third tube 5 cc. of the same salt mixture, and to the first and third tubes two drops of rabbit serum were added. The first showed a cloudiness in thirty minutes, while the other two remained clear for twelve hours, when the second showed a slight cloudiness.

EXPERIMENT IV. A brown rabbit, weighing 1,780 gm., was injected Feb. 20 with a mixture of saliva and blood, obtained from an operation upon a tonsil, 10 cc. being used, and again on Feb. 25 with a similar amount. On Feb. 27 the animal died with the snuffles, and the heart, lungs, liver and kidneys were chopped finely and extracted with the customary salt solution and centrifuged for ten minutes. Ten cubic centimeters of this clear fluid were added to the same amount of extract from human blood stains, with negative results. The same amount was also added to an equal amount of an extract of rabbit's blood stain, with similar negative results.

EXPERIMENT V. Injection, March 17, with 10 cc. of a bloody effusion from the pleural cavity of a patient whom a later autopsy showed to have died of cancer of the lung, and on March 22, 25 and 29, similar injections of like amount were made. On April 1 the animal was bled to the extent of 10 cc., and the blood placed on ice for coagulation, as usual. The next day stains of fresh dog's, cat's, rabbit's and human blood on filter paper were soaked out with physiological salt solution, and to a total of 10 cc. In each tube four drops of the clear serum were added. After two hours there was no precipitate nor cloudiness in either tube, but after eighteen hours the tube containing the human blood was cloudy, while the others were clear.

By referring to these experiments severally, we learn from the first and third that pleuritic and hydrocele fluids produce but slight if any specific action upon the rabbit, unless, as in Case V, a certain amount of blood is mixed with such fluid. What the blood loses on this separation from the blood current, apart from the red corpuscles, cannot be told,

for chemically the exudate at least does not differ from blood except in this one factor. The transudate, of course, is much more deficient in the albuminous material, particularly in the globulins, one of which is supposed to carry the immunizing material, as in the so-called antitoxins. In all these experiments a more active antiserum was obtained when the blood in its entirety was used instead of the serum alone for injection, nor is it impossible that the serum had dissolved out from the corpuscles some element where the serum alone was used for immunisation, after it stood long enough for the corpuscles to settle, since Heinrich Schur² has shown that spontaneous hemolytic action can take place when blood corpuscles remain for any time in contact with their own blood serum, even after coagulation has taken place. It would be extremely interesting to learn whether isotonic salt solution by its spontaneous hemolytic action on corpuscles, entirely freed from serum by centrifugation and washed, could extract an immunizing principle from them of sufficient strength to produce precipitation in a rabbit. Hence it is not at all impossible that the precipitating principle may be found in the red or white corpuscles, and be soaked out by the serum in which they are suspended. At least in the fifth experiment a positive result followed the use of a similar fluid (pleuritic exudate) which had failed in the first, except that the latter was highly tinged from the red corpuscles and dissolved hemoglobin which it contained. It is also difficult to free immunized rabbit serum fully from a certain amount of hemoglobin which is dissolved out from the corpuscles during the process of coagulation. Another reason for thinking that it is the hemoglobin and not the serum which contains the precipitin or composes it, is that the hemoglobin of various animals differs so decidedly, especially in its crystalline form, while chemically the sera differ but very little. We have only the earlier efforts of Uhlenhuth, Wasserman and Schuelze in which the serum alone was used for injection, nor can I find any account of how carefully it was freed from coloring matter; in later attempts the defibrinated blood was used instead for immunization. If the hemoglobin has nothing to do with the production of the precipitin, it is difficult to explain why an exudate containing hemoglobin is so much more effectual than one without.

Again, when we dissolve out an old blood stain with salt solution, we obtain the hemoglobin, or met-hemoglobin, its modification, as can easily be shown by the spectroscope. We know further that the hemoglobin is the most resistant to putrefactive agencies, while the albumens of the serum fall an easy prey to such decomposition. Hence we have a clear sequence which points to the coloring matter, rather than the serum or any of its constituent parts, as causes of the precipitin. Ziemke³ attempted to isolate the globulin by magnesium sulphate, thinking that this would carry the agent, but found it only slightly active even when obtained from a very active serum. It seems also that after six or eight hours all sodium chloride extracts of blood stains will become cloudy or even deposit precipitates. This cannot be due to bacterial action, for it occurred with equal readiness when they were kept upon ice.

²Beiträge zur physiol. und patholog. Chemie, vol. III, p. 100.

³Deutsche med. Woch., Oct. 17, 1901.

In the first experiment it will be seen that precipitates were found in all the solutions in twenty-four hours, though the serum, as was shown, was in no way specific for human blood, and yet this is not true in all cases, for in the fifth, after eighteen hours, all were clear except the human blood, which had shown no cloudiness after two hours. This probably indicates a serum not over strong in antitoxic bodies, or possibly too dilute a solution of the various blood stains. This spontaneous precipitation cannot be due to the blood corpuscles which settle out, for, in the second experiment, the contents of the second tube were thoroughly shaken down with the centrifuge and the supernatant fluid which was poured off was absolutely free from corpuscles of any kind. As is well known, serum globin requires a 10% salt concentration for its solution, and as we use less than a tenth of this for soaking out the blood stains, it is possible that by some molecular change the globulin, or, as I suspect, the conjoined hemoglobin, falls out of solution. Until the causes of this spontaneous precipitation of albuminous bodies are more accurately determined, the value of this test will depend very largely on the control, and we can never say positively that we do, or do not, have a precipitin until the tube prepared in a similar way, but without the serum to be tested, has passed a period of at least two hours without spontaneous cloudiness; then, and then only, may we consider that a precipitating agency is present, if at this time the other tube has a cloudiness or precipitate.

The second experiment presents another surprise, in that a supposedly immunized rabbit serum to human blood gave precipitates with both human and rabbit blood stains. Both tests showed cloudiness rather than a distinct precipitate, which would lead one to think that the specific serum was weak in precipitin, yet the same fact, also noted by G. Strube,⁴ who found that a serum supposedly specific for human blood gave precipitates with the blood of monkeys, guinea pigs, hens, calves, goats, dogs and sheep, was explained by him as meaning that a serum unusually strong in specific power over human blood would also react weakly with somewhat allied bloods. My own explanation was that a rabbit only partially immunized might furnish a serum which was antagonistic to both the peculiar natural blood of his kind and also to human blood, and hence produce a precipitate in both. Contrary to Strube's results, also, my serum had no effect on the other bloods tried. He goes on further to say in regard to these double results that various animals contain albumins which are not identical but which are very closely related, and that anti-bodies act with energy upon specific albumins and more weakly upon non-homologous ones.

In Experiment Four we have shown that this active agent must be in the blood instead of in the organs, at least, if present in the latter, in such a form that it cannot be extracted by the salt solution. It is possible, of course, that owing to the interruption of the injections by the death of the animal it was not fully immunized. It was our experience also, that the serum which contained the active principle could not be preserved on slips of filter paper, and an active serum which had been kept for a long time

in the refrigerator had also lost the greater part of its efficiency and acted only weakly if at all upon human blood stains. In this the precipitin differs very decidedly from the other antitoxic bodies, which, as is well known, preserve their activity for long periods and are not affected by a small percentage of preservatives.

From this can be seen at a glance the restrictions that surround this test, and that only when all of these have been strictly observed can we say with any degree of surety, *this is human blood*.

REPORT OF A SERIES OF CASES OF MOVABLE KIDNEY.¹

BY H. D. CHADWICK, M.D., WALTHAM, MASS.

DURING the past three years twenty-eight patients have come under my care suffering from symptoms referable to a movable kidney. Of this number twenty-four were females and four were males. In one man and three women the left kidney was the one affected; in twenty-four the right kidney, and in one woman both were freely movable, and each gave rise to symptoms. Ten of these women were married, and of this number eight had borne children. Occupations were as follows: eleven were housekeepers; eleven, factory employees; two, domestics; one, bookkeeper; one, postman; one, reporter; one, farmer. Nineteen of this series had been previously treated symptomatically without a correct diagnosis having been made. Most frequently the patient was told that it was some form of indigestion, acute or chronic, as the case may have been. Other diagnoses were enlargement of the liver, spinal disease, colic, heart disease, chronic appendicitis, pleurisy, inflammation of the pelvic organs, malposition of the uterus, — and one woman was told her trouble was due to a "sore on the liver." Several of those in whom the symptoms resembled indigestion had made the rounds of several physicians, taken all the domestic and patent sure cures, and tried diets of varied kinds without relief. One had had her uterus suspended because it seemed to the surgeon whom she consulted that the backache, which was her most prominent symptom, was due to a retroversion which was present. She consulted me one year after her operation because she had not been relieved of her backache and nervous symptoms. She felt sure the operation had not been successful and that her uterus was as badly misplaced as before. A vaginal examination showed that the uterus was in perfect position and that the other pelvic organs were normal. Close questioning brought out the fact that she at times felt pain in her left loin, especially when doing hard work or after much walking. The abdomen was then palpated and the left kidney was found freely movable and tender to pressure. Another patient of interest to you has recently come under my care. She gives the following history: Four or five years ago she rode a bicycle a great deal; tried to follow her husband in hill climbing and long-distance runs. Began then to have backache at intervals. These attacks caused her to give up riding, and then she found that walking soon gave her the same discom-

⁴ Deutsche med. Woch., June 12, 1902.

¹ Read before the Obstetrical Society of Boston, Dec. 16, 1902.

fort. Recently backache has been almost constant, frequently accompanied by nausea. Six months ago she consulted a physician and was told that she had displacement of the uterus and that she ought to have an operation. She objected to that method of treatment, and the physician kindly consented to use tampons three times weekly for the next three months. The benefit derived was so little that her scruples against an operation were removed and arrangements to have it performed were made. This plan was not carried out because of the illness of her husband. Her symptoms continued and she became very nervous and despondent; was afraid to leave her home, as walking brought on the distress with greater intensity; loss of weight was considerable, as her appetite was poor, and she could not sleep well. I was called to see her, and from the description of her condition I thought that her symptoms were those of a retroverted enlarged uterus. At my request she came to my office, that a more careful examination might be made. Much to my surprise, the uterus and appendages were normal in every way. She then, in answer to my questions, said that she at times had attacks of pain in the right hypochondrium, which she thought due to indigestion; that she was also annoyed by a sensation of tingling or burning about the crest of the ilium. The right kidney was easily felt by palpation, and it descended about two inches with each inspiration. She has now decided to have her kidney suspended instead of her uterus.

A third case will be described in detail because of several interesting features. This married woman was about thirty years old. Thirteen years ago she fell and caused some internal injury which produced abdominal pain and, at the time, soreness. Soon after this she began to have attacks of pain in the right hypochondriac region which increased in frequency. About three years later she could sometimes feel a bunch in the right side which moved with the respiration. She was told by her physician at that time that it was a movable kidney, which could only be cured by an operation. During the past year she has felt similar pain in her left loin. Sweeping or walking caused increased pain, which was often referred to the region of scapula, backache was frequent and relief could be obtained only by lying down. The last few months she has had pain every day—frequently so severe that she would have to leave her work in the watch factory to go home and lie down. She had lost flesh rapidly, was intensely nervous, irritable and despondent. Examination at this time showed that the right kidney would move about three inches with deep inspiration, was tender to touch and pressure produced a feeling of nausea. The left kidney was movable to about half this extent and pressure caused similar symptoms. An operation was done March 6, 1900, and both kidneys were sutured to the lumbar fascia. A good recovery was made, and her gain in flesh and strength was rapid. Her backaches and attacks of lumbar pain were entirely relieved. The following December she missed her menstrual period, and soon after began to have morning nausea characteristic of pregnancy. Vomiting soon became troublesome, and she could not retain sufficient nourishment. Occasionally she complained of brief attacks of

pain in the abdomen, especially along the course of the ureters. During the first week in January she began to flow and had characteristic labor pains. This continued four days without any cessation. Her temperature was taken during this time and found to vary from 99° to 100° each evening. Cur-etting was then decided upon. The os was found to be patulous, the uterus a little enlarged, no placental tissue was brought out by the curette, although the whole cavity of the uterus was supposed to have been gone over.

The temperature dropped to normal three days later, but remained there only a few days, when it again began to show the same evening elevation. All nausea and vomiting stopped and her appetite returned. Her strength, however, did not return, but instead she became gradually weaker during the next four weeks. Dr. Worcester saw her with me, and an exploratory laparotomy was decided upon. This was done Feb. 5. The uterus was moderately retroverted, somewhat enlarged and felt like one that was pregnant. The peritoneum covering the uterus, tubes and ovaries was thickly studded with red and fresh tubercles. Neither the parietal peritoneum nor the other abdominal organs showed evidence of tuberculous lesions.

The uterus was suspended and the wound closed. Nine days later labor pains came on and an ovum of about six weeks was expelled entire. A good recovery was made from the operation, and after the miscarriage the temperature dropped to normal and has remained so since. Her summer has been spent in Canada, and now she is again back at work in the factory, feeling well in every way. It is an interesting fact that she had become pregnant five years before and miscarried at the end of three months. During that whole period her temperature was elevated, as it was during the last pregnancy, and nausea and persistent vomiting were constant. It seems probable that the tuberculous lesions were then present and did not light up into activity until the uterus again began to enlarge.

The other cases may be arbitrarily divided into acute and chronic.

In the first class are put those who have occasional severe paroxysmal attacks of severe pain, accompanied by chills, nausea and prostration, spoken of as Dietl's crises. Into this class six of these series could be placed. The attacks came on after some unusual or continued exertion, but sometimes also when no cause can be assigned. The patient is seized with intense colicky pain in the hypochondriac and lumbar regions. This pain sometimes extends along the course of the ureter and again in some cases upward to about the level of the scapula. Chills and nausea or vomiting sometimes accompany these paroxysms. The victim of such an attack gets some relief by lying down with the thighs flexed. Physical examination shows great tenderness in the loin, most marked when an attempt is made to palpate the kidney. The muscular rigidity is so great, however, at such times that the kidney can seldom be felt. This acute condition gradually subsides with rest in bed and hot fomentations; morphine will be demanded in considerable doses. The temperature may rise to 100°, and gradually subsides in a few days as the congestion is relieved. After a few days the patient

recovers and is free from pain until another attack comes on; the duration of this immunity depending upon the occupation of the patient and also upon the extent of the abnormal mobility of the kidney.

In the other group of chronic cases the attacks of pain are of more moderate severity but more frequent occurrence. The patient soon learns that when the pain is severe a few hours, as in some cases, a few minutes' rest in bed, lying on the back, will relieve the acute pain. Constant or frequent backache along the lumbar spine is almost always complained of by these patients. This pain is similar in character and position to that which is so often produced by retroversion.

This is oftentimes the prodromal symptom of a loose kidney. Then a feeling of discomfort in the epigastrium or hypochondrium becomes frequent. This is almost invariably supposed to be due to indigestion, but is uninfluenced by diet or anti-dyspeptic remedies. Various forms of indigestion may, of course, coexist, due to gastropexia or similar causes. Seven of my series first consulted me for what they thought was chronic dyspepsia, and they considered that the attacks of renal pain were due to acute indigestion. Flatulency and constipation are almost always present, due probably to the abnormal influence of the kidney exerted through the sympathetic nerve plexus. The third most frequent symptom is one which, when present, seems to me pathognomonic of a movable kidney. It is a peculiar sensation, which is frequently spoken of as like that made by searing the flesh with a hot iron,—neither a pain nor an ache, but a burning and prickly feeling over the skin supplied by the ilio-hypogastric nerve. Especially is this felt about the crest of the ilium and outer surface of the hip. One patient came to me for relief of this uncomfortable sensation along the outer surface of her right ilium. Thinking that it was a symptom of movable kidney, I examined her and found that such was the case. She also thought she was suffering from indigestion. Loss of flesh is also the rule in the chronic cases. The various forms of neurasthenia can all be found in these patients. In the severe chronic cases a depression bordering on melancholia exists. Another typical symptom is often spoken of. A person finds that they feel worse after going to bed and have difficulty in going to sleep. If they go to sleep, they are soon awakened with distress about the stomach and upper part of the abdomen, which is ill defined in location but makes them nervous and restless; they have frequently to get up and walk about. This has been complained of by my patients as occurring soon after going to bed. The only explanation for this seems to be that removal of the clothing allows the kidney greater freedom of movement.

The proper treatment of this affection seems to depend upon the severity of the symptoms rather than upon the amount of inability. A movable kidney is not infrequently found, while making physical examinations, which has never produced troublesome symptoms. When, however, the abnormal inability becomes a menace to a person's health or limits his usefulness, there is in my opinion only one treatment that will give relief or produce a cure. That is fixation.

Palliative treatment by pads and bandages has in my hands been of no value. It does not seem logical that effectual pressure can be made upon an abdomen containing a movable object like the kidney with other effect than added discomfort to the patient. Rest and tonic treatment will relieve and diminish the frequency of the attacks, but when labor is resumed the kidney symptoms will invariably return.

Nephropexy, on the other hand, if thoroughly done, will produce a radical cure. The good results are as certain to be permanent as are those obtained when a retroverted uterus is corrected by suspension.

An operation was performed on fifteen of this series of cases, one of them a double nephropexy. The results obtained have been very satisfactory, with the exception of one case. That was one of my earlier cases, and after a few months the kidney again became movable. I suppose that I did not split the capsule enough for adhesions to form, and when the stitches gave way the former conditions returned. One other developed chronic appendicitis soon after her kidney operation, which became so troublesome that the appendix was removed. Another case has similar symptoms now, which are probably due to an inflamed appendix. The frequency of this condition in patients with a movable kidney is supposed to be due to the chronic congestion caused by the misplaced kidney.

I realize, gentlemen, that I am in danger of being looked upon as one having the kidney fad, but I am willing to run that risk if by so doing some of the persons who have been going about from one office to another, having many of the characteristics of a neurasthenic, may be recognized and cured. Some of them are the victims of a pathological condition which can be easily remedied, and are *not* hypochondriacs, whose delusions must be endured.

THE COMPOSITION AND ALCOHOLIC CONTENT OF CERTAIN PROPRIETARY FOODS FOR THE SICK.

BY CHARLES HARRINGTON, M.D., BOSTON,

Assistant Professor of Hygiene in the Harvard Medical School.

In presenting this brief communication I propose to discuss neither the question of the food value of alcohol nor the advisability of the use of that agent as a remedy in the treatment of disease. It is my intention merely to offer the results of my examination of a number of preparations which are extensively advertised, and, inferentially, widely used, as foods for the sick and for convalescents, and to leave the question of their true nutritive and therapeutic value a matter for independent judgment.

My attention was drawn to this class of preparations by the fact that an invalid who was faithfully following the directions accompanying one of them was observed to be more or less constantly in a state of marked intoxication, for which condition no cause could be assigned, until the suspicion was directed to the food, which proved, on analysis, to contain a fairly large percentage of alcohol; and this suggested the advisability of obtaining specimens of other preparations for investigation.

Among those examined were a number which

proved to be almost or wholly non-alcoholic, and although their food value was shown to be very slight when their cost was taken into account, they will be passed by without mention.

Of those which I report, it will be noted that the analyses made were not exhaustive, the determination having been restricted to the percentage of alcohol, total solids and mineral matter. The yield of total solids was such in each case as not to warrant the expenditure of the time necessary for an investigation of the nature of the several constituents, and for our present purpose we may concede that the total residue of each preparation is wholly absorbable.

Following are those which were found to contain appreciable amounts of alcohol:

"Liquid Peptonoids.—Beef, milk and gluten, perfectly digested" is said to contain the albuminoid principles of beef, milk and wheat. "In cases of feeble digestion and wasting diseases," its effects are said to be "immediate and pronounced."

Dose: For an adult, one or two tablespoonfuls, three to six times daily; children in proportion.

The maximum amount recommended for an adult will yield less than an ounce of nutriment and the alcoholic equivalent of 3.50 oz. of whisky per day.

Analysis shows 23.03% by volume of alcohol, 14.91% of total solids, and 0.17% of mineral matter.

Panopepton.—This is said to contain "the nutritive constituents of beef and wheat in a soluble and freely absorbable form." "A nourishing, restorative, stimulant, liquid food of incomparable value for the nutrition of the sick"; "the best food in acute diseases, fevers, etc., in convalescence"; "a restorative from fatigue"; "a special resource against insomnia."

Directions: "For adults, a dessertspoonful to a teaspoonful several times a day and at bedtime; for infants, a few drops to a half teaspoonful according to circumstances, as directed by the physician."

It yields 17.99% of solid matter (including 0.97% of mineral matter) and 18.95% by volume of alcohol.

Hemapeptone.—This is said to be a preparation of "albumose-peptone," "the end product of digestion of albumin and hematin, a true organic iron."

One is advised to take a teaspoonful, increasing to a tablespoonful as needed, after each meal.

Analysis: Alcohol by volume, 10.60%; total solids, 19.54%; mineral matter, 0.37%.

Nutritive Liquid Peptone.—This is said to be "a valuable combination containing the nutritive constituents of beef and malt, predigested and ready for assimilation," and to possess "the properties of a gentle and refreshing stimulant."

No dose is given. The analysis shows: Alcohol by volume, 14.81%; total solid nutriment, 15.20%; mineral matter, 0.69%.

Hemaboloids.—The nutriment in hemaboloids is said to be "partially digested and vitalized by treatment with nuclein, rich in iron and phosphorus-producing elements." It is said to enrich the blood,

to increase weight and the number of red blood cells, and to enhance nerve action. The preparation is said to consist of vegetable nucleo-albumin, reinforced by beef marrow extract and beef peptones, and is to be used in all impoverished conditions of the blood, such as anemia, general debility and in convalescence from all diseases.

The dose recommended is one-half to one teaspoonful three to four times daily in a little water, plain or aerated, or with cracked ice. "If necessary, increase to two tablespoonfuls."

The maximum recommended yields about a quarter of an ounce of nutriment, and the alcoholic equivalent of about an ounce and a half of whisky daily.

Analysis shows 6.36% of total solids (about half as much as is contained in milk of fair quality) and 15.81% by volume of alcohol. The mineral matter, which is largely iron, amounts to 0.62%.

Tonic Beef.—Tonic Beef is said to contain "the nutritive constituents of beef, wheat and fresh eggs in a soluble, predigested and hence readily absorbable form." One is led to believe that the beef is carefully selected, and that the blending of the constituents of these three very important foods, and their flavoring and aging (whatever that may mean in connection with eggs), have been conducted on most scientific principles. After being treated to an imposing array of facts concerning the value of the preparation, we are informed that "besides being a nutritive, Tonic Beef is a delightful stimulant." Adults are advised to take from half to one tablespoonful every four hours and at bedtime; infants and children should be given from ten drops to a teaspoonful, according to age.

A tablespoonful every four hours will yield to the consumer in the course of a day about a half ounce of nutriment and the alcoholic equivalent of an ounce of whisky, for analysis shows 15.58% by volume of alcohol and 18.16% by weight of residue, including 1.04% of mineral matter.

Mulford's Predigested Beef.—"A concentrated predigested food containing the entire nutritive value of beef in a completely digested form, ready for immediate absorption into the system."

It is claimed for it that "it is a complete natural food product, containing sufficient nutritive materials to maintain normal nutrition of the body," and that it is "indicated as an exclusive diet in typhoid fever, la grippe, tuberculosis, nervous exhaustion and all conditions of the system associated with enfeebled digestion and malnutrition."

Dose: One to two tablespoonfuls in water every two or three hours, or as needed; children in proportion to age.

Analysis shows 19.72% by volume of alcohol, 10.39% by weight of total solids, which yield 0.20% of mineral matter.

The maximum administration recommended, that is, two tablespoonfuls every two hours, disregarding the proviso "or as needed," would yield daily about 1.25 oz. of nutriment and the alcoholic equivalent of about 6 oz. of whisky, which might well be regarded as hardly adequate as an exclusive diet in the diseases above mentioned or in any other condition of the system.

Clinical Department.

A CASE OF HABITUAL DISLOCATION OF THE SHOULDER JOINT.

BY J. COLLINS WARREN, M.D., BOSTON.

The following case is reported in order to put on record another successful result following the operation described by Burrell and Lovett¹ for the cure of this affection.

The patient, a house-lather by trade, was twenty-two years old. Four years before entering the hospital he had fallen on the ice and dislocated his left shoulder joint. The dislocation was reduced and the joint gave him no trouble for about six months, when he again dislocated the joint while swimming. Since then it has been dislocated some ten or twelve times, the raising of the arm while plastering favoring the slipping of the bone from its socket. On examination the left arm was found to be less muscular than the right. There was slight atrophy of the deltoid, but no restriction of motion.

The operation was performed Oct. 19, 1901. An incision four inches long was made from the coracoid process downward and outward along the inner border of the cephalic vein. This vessel and the deltoid muscle being drawn outward, the tendon of insertion of the pectoralis major was exposed and divided in the greater portion of its extent. The coraco-brachialis and the short head of the biceps were drawn inward by a retractor.

The head of the humerus being rotated outward, the insertion of the subscapularis was brought into view. By dropping the head of the bone backwards this muscle was relaxed and its lower edge could be differentiated from the capsule. By freeing the lower edge of this muscle the capsule was exposed, a piece of the capsule one inch in length by three-quarters inch in width was excised, and the wound thus made was closed with silk sutures, putting the capsule on the stretch. The divided tendon of the pectoralis was united by a buried silk suture and the skin was brought together by silkworm gut sutures.

The wound healed by first intention, and the patient was discharged well on Nov. 2, two weeks after the operation.

In answer to a letter of inquiry the patient writes under date of Feb. 19, 1903, that is, over two years after the operation, that there has been no dislocation since the operation, and that his present occupation does not require so much upward use of the arm as it did before, "still I have used it as much as the ordinary person." He has, however, had no trouble whatever with his shoulder, and he regards the operation as a success in every way.

ACCORDING to *American Medicine*, Dr. A. S. F. Grünbaum has been appointed director of Cancer Research, for which Mr. Sutton Timmis of Liverpool recently gave a donation of \$50,000. The work will be carried on in connection with the University College and the Royal Infirmary of Liverpool.

¹ Am. Journ. Med. Sc., August, 1897.

Medical Progress.

PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

COMPULSORY NOTIFICATION OF TUBERCULOSIS.

AFTER a free discussion of the question *pro* and *con*, a committee of the Society of Public Medicine consisting of Vallin, Berthod and others reported as follows:¹

"Notwithstanding the arguments which practicing physicians propose in opposition to the plan of notification of cases of tuberculosis, and taking into consideration the burden imposed by a sanitary law making the attending physician responsible for neglect or refusal to report such cases, the committee, while favoring the adoption of the principles, and not doubting for a moment that obligatory notification would prove an excellent and a desirable means in staying the spread of consumption, nevertheless hesitates to demand that this disease should be placed upon the list of contagious diseases. The committee believes that the time has not yet arrived to adopt this course. They also believe that the desired result can be attained and the task of the physician relieved by educating the public as to the nature of the disease, before placing it on the list of unquestionably communicable diseases."

OYSTERS AND TYPHOID FEVER.

Remlinger² reports the results of investigation of 34 cases of typhoid fever received at the French Hospital at Constantinople, from Jan. 15 to June 15, 1902, 17 of which had eaten oysters within the recognized incubation period of the fever.

The shores of the Bosphorus abound in oyster beds, very many of which are in regions foully polluted by sewage. As one French writer states, "*L'œil est inutile; le nez suffit*" to distinguish the polluting causes.

The oystermen of London have held a meeting³ at which resolutions were adopted calling for measures to be taken to prevent the sale of oysters from beds known to be contaminated with sewage, and also to prevent the discharge into rivers, estuaries and any part of the seacoast.

Dr. Fraser, medical officer of health, of Portsmouth, England, where outbreaks of typhoid fever traceable to oysters have occurred, lays down the following propositions⁴ as essential to make out a satisfactory case against the oyster:

(1) That the oysters had been eaten at such a date previous to the onset of the disease as would be consistent with what we know as to the time typhoid fever takes to develop in man.

(2) That there was no other condition common to all or a large proportion of the cases which could be regarded as playing a causal part in the disease.

(3) That the oysters had not only been exposed to sewage contamination, but that this sewage actually contained the specific infection of typhoid fever.

Dr. Fraser says it is unreasonable to suppose that every oyster would be infected, and it is quite pos-

¹ Rev. d'Hygiène, May, 1902, p. 460.

² Rev. d'Hygiène, October, 1902, p. 873.

³ Brit. Food Jour., January, 1903, p. 3.

⁴ Brit. Food Jour., January, 1903, p. 4.

sible that only those people were affected who were subject to one or other of the following conditions:

(a) They may have eaten a specially large number of oysters, and so have had a large quantity of the typhoid poison.

(b) They may have eaten only a few, but these few may have been contaminated with a large amount of the typhoid poison.

(c) They may have been in a delicate state of health, or have been constitutionally very susceptible to the disease.

WATER CRESSES AND TYPHOID FEVER.

The London *Daily Telegraph* (November, 1902) calls attention to the danger of transmission of typhoid fever by means of water cresses which have been grown in streams more or less polluted by sewage. Water cress not only grows in water, but is brought to market thoroughly drenched, and is kept in water till it is sold, and is then eaten raw. These conditions favor the growth of disease germs. The producers or growers "are under moral obligation to spare no trouble in ensuring that the water they are in is free from pollution, while the local authorities in the districts where cresses are grown ought to enforce stringently the sufficiently severe laws against stream pollution." The writer concludes with the timely observation that "of typhoid fever it is particularly true that prevention is better than cure, and prevention is only a question of energy and efficiency on the part of the sanitary authorities, who might occasionally spare a thought for a vegetable with so many chances of working mischief as water cress."

VIABILITY OF THE TYPHOID BACILLUS.

Majors Frith and Horrocks⁵ give the results of experiments which they had made to determine the length of time the typhoid bacillus may survive in soils and on fabrics, and recently Professor Pfuhl of Berlin⁶ has published the results of similar experiments. The figures given are respectively: from moist garden earth the bacillus was recovered after 74 and 88 days, from dry sand after 25 and 28 days, from moist peat after 13 and 21 days, and from dried linen after 74 and 97 days. These observers practically confirm each other.

PROGRESS OF THE PLAGUE.

Low⁷ records chronologically and topographically all recent manifestations of plague throughout the world. He has given special attention to the rôle of the rat in the distribution of plague, and though the records which he has collected go to confirm the belief that, as regards plague, man and the rat are reciprocally infective, they fail completely in affording sufficient data for determining the degree to which man is in danger through the rat. So far as plague on land is concerned, it would appear that in particular localities man and the rat suffered from plague coincidentally; that in other localities man suffered before the rat; and that in others the rat suffered antecedently to man. It would also appear that when, in a particular district, the one (man or the rat) has contracted plague before the other, the

interval between invasion of the first and of the second species has been often a long one—extending sometimes over weeks and months. Again, it would appear that plague may prevail largely among men without rats becoming conspicuously affected; and conversely that the disease may cause large mortality among rats of a locality, while neglecting to attack its human inhabitants.

As regards plague on board ships there are similar facts. The disease does not under conditions of sea transit appear to be at all readily conveyed from the rat to man, or from man to the rat. On the one hand, ships infected with plague for several weeks in the persons of crews or passengers have come into port with the rats on board apparently altogether exempt from the disease; and, on the other hand, ships infected with plague-smitten rats have, after voyages of considerable duration, arrived at their destinations wholly free from plague as regards crew and passengers.

BERI-BERI ON SHIPBOARD.⁸

Out of a total of more than 4,000 ships arriving at the port of Falmouth, England, in the six years 1896-1901, 43 had crews more or less affected with beri-beri. Of this number 28 were Norwegian ships. The disease was rarely found on steamers making short voyages. With regard to the sanitary condition of ships of different countries the observer found that of German ships to be the best, and of the Norwegian he makes the following comments:

They are,—

- (1) In a worse sanitary condition.
- (2) Oftenest undermanned.
- (3) Worst fed and found.
- (4) Oftenest carry deck cargoes.
- (5) Oftenest carry wood cargoes.
- (6) Smallest vessels that go on long voyages.
- (7) Worst regulated scale of diet.

He carefully investigated the water supply of the ships and every item of the food supply without finding definite causes for disease. The question of the presence of arsenic in food was also carefully examined with negative results.

ANCHYLOSTOMIASIS AMONG MINERS AND TUNNEL WORKERS.

Dr. J. S. Haldane, in a report to the British government,⁹ describes an outbreak of anchylostomiasis in a Cornish copper and tin mine. There had been among the workers in this mine 115 cases of severe but unexplained anemia since 1893. He says in one part of the mine "practically every one employed in this part of the mine seems to have been more or less affected, as well as the manager and nearly all the officials employed underground." These mines are specially exposed, "owing to the fact that Cornish miners are continually returning from tropical countries, and men known to have been infected are scattered over the district. It should be clearly understood that many of the men who are only slightly infected show no symptoms at all, as the presence of a few anchylostomes in the intestine may produce no symptoms. Such men may con-

⁵ Brit. Med. Journ., Sept. 27, 1902.

⁶ Zeitschr. f. Hygiene u. Infektionskrankheiten, 40, 3, p. 455.

⁷ Reports and Papers on Bubonic Plague, London, 1902.

⁸ Notes on Beri-Beri at Falmouth, by Dr. C. Ballmore, Medical Officer of Health. Public Health, January, 1903.

⁹ Report to the Secretary of State, on an Outbreak of Anchylostomiasis in a Cornish Mine, by J. S. Haldane, M.D., F.R.S., 1902.

tinue for years to be a source of possible infection, owing to the presence of ova in the feces."

By the use of disinfectants, and the pail system for collection of excuta, the epidemic was greatly diminished.

Close upon the publication of this report comes the statement¹⁰ in another country of the prevalence of the same disease among the Swiss tunnel workers. During the construction of the St. Gothard Tunnel several hundred men became incapacitated from the same cause. To minimize the infection the Hungarian University of Agriculture and Mining has issued instructions that all laborers engaged in tunnel work (especially those from other districts) must be medically examined for ankylostomiasis, and preventive measures must be taken to prevent the spread of the disease, such as iron earth closets fitted with tight lids, the contents to be removed to the open air daily and buried after being treated with quicklime. Great care must also be taken to provide a supply of perfectly pure drinking water, stored in clean vessels.

Similar regulations were also adopted in the Simplon and Arlberg tunnels with good effect.

(See, also, Dr. Stiles' excellent paper in Report of Bureau of Animal Industry for 1901, entitled "The Significance of the Recent American Cases of Hookworm Diseases [Uncinariasis, or Anchylostomiasis] in Man," p. 188.)

THE STERILIZATION OF VACCINATING INSTRUMENTS.

Sagranti, surgeon of the Eleventh French Dragoons, has invented for use in vaccinating large numbers of people — regiments, schools, etc. — vaccinostyles or small metallic lances, one for each person vaccinated. These are sterilized by placing them to the number of fifty or more in racks in a small metallic cylinder, which is put into a large cylinder containing a 2% solution of carbonate or borate of soda, which is kept at the boiling point for ten or fifteen minutes by means of a spirit lamp. The advantages of this method are the greater rapidity in the vaccination of large numbers of persons, and the sterilization of the vaccinating instruments.

(To be continued.)

Reports of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

STATED meeting, Feb. 9, 1903, the president, ANDREW H. SMITH, M.D., in the chair.

DISCUSSION ON THE ADDRESS BY DR. WILLIAM H. THOMSON, AT THE ANNUAL MEETING, JAN. 12, ON "THE TREATMENT OF UREMIA." (See page 183.)

Previous to the discussion, Dr. Leonard Weber presented a young man twenty-one years of age, the subject of chronic Bright's disease, who had had the Edebohls' operation performed on him. The patient suffered from what might be called chronic uremia, and early in 1902, despite the most active treatment, his condition became very bad.

¹⁰ Zeitschrift des Oesterreichischen Ingenieur, 1902, p. 543.

He was sent to the Post-Graduate Hospital on May 5, and on May 12 renal decapsulation was done by Dr. Edebohls. Although the disease had then existed for eleven years, there was no atrophy of the kidneys, these organs, which were of the mottled variety, being found to be about twice the size of ordinary kidneys. He remained in the hospital one month, and on June 7 again came under Dr. Weber's care. Since then there had been no uremia whatever and no anasarca, and he felt so much better that he was able to do light work. The specific gravity of the urine still continued as low as before, however, and albumin was still abundant in it (specimens exhibited). Dr. Weber referred to two other patients, brothers, who had been in almost exactly the same condition as this one, both of whom had died in uremic coma shortly before being operated on, and said that at the time the operation was performed it seemed in his case, also, that the end must come very soon. Dr. Edebohls exhibited the cicatrices left by the operation, and said that the wounds always healed by primary union. No weakness of the back or other parts resulted from the operation.

The discussion of the evening was opened by Dr. GEORGE M. EDEBOHLS in a paper entitled,

THE TREATMENT OF CHRONIC BRIGHT'S DISEASE BY RENAL DECAPSULATION: A REPORT OF PROGRESS.

He first gave a *résumé* of the history of this procedure as done by himself and other surgeons, the last publication of his own on the subject having appeared in the *New York Medical Record* of April 26, 1902. He then said that by painstaking effort he had been enabled to see or get word from all the patients operated on by himself, so that he could present the status up to date.

Analysis of cases. — From 1892 to 1901, inclusive, he operated on 19 cases, and during the year 1902, on 82 cases. Of the 51 cases, 29 were in males and 22 in females, and the average age was thirty-four years. In 32 cases the Bright's disease was far advanced, and nearly all the cases were attended by cardiac or other complications. Of the 51 cases, 29 were of chronic interstitial nephritis, and in all but 9 only one kidney was decapsulated; 14 were of diffuse nephritis, and 8 of parenchymatous nephritis. If only one kidney were affected, he said, the patient suffered very little, and the renal disease might be discovered only accidentally.

Preparation for the operation. — The chances of success are enhanced by the patient's remaining in bed for a week before the operation. This gives the heart a rest if cardiac complications are present, and affords the best facilities for any preliminary treatment that may be required, as well as for the systematic investigation of the quantity and condition of the urine.

Conditions affecting the difficulty or ease of the operation. — (1) Great length and obliquity of the twelfth rib. This difficulty must be overcome by posture and a modification of the incision. (2) Mobility or firm adherence of the kidney. When there is firm fixation it is generally necessary to incise the capsule at any point that can be reached. (3) The firm or more or less weak attachment of the capsule. Great caution and gentleness should

characterize all attempts at decapsulation. In this operation there is often considerable danger of destroying some of the already diminished working tissue of the kidney, and it should never be performed except by surgeons who are already more or less familiar with renal surgery in general.

Danger and anesthetics.—The danger is always greater from the condition present than from the operation itself. One hour should be the limit of time for decapsulating two kidneys, and half that time is often sufficient for operating on both. In all but three of the operations ether was used, preceded by nitrous oxide gas. In three, nitrous oxide and oxygen were administered by Dr. T. L. Bennett. In one of these ether had to be used afterward, and finally chloroform, to prevent death on the table. This patient died twelve hours after the operation from acute dilatation of the heart.

Results.—Of the 51 patients operated on, 14 died, and the time of death after the operation ranged from twelve hours to eight years. Five died from uremia and three from acute cardiac dilatation. Others, one of whom at least was cured of the nephritis, died from different diseases. Of the 14 cases, 7 lived for periods ranging from two months to eight years, the average being nearly three years. The mortality shortly after the operation was 13½%. Dr. Edebohl said that for one reason or another (the patients often begging him to operate) he had felt compelled to accept a number of cases in which death seemed a foregone conclusion. He gave them the benefit of the doubt, however, as surprisingly good results had been obtained in some other cases of the same kind. Some of these patients were physicians, who urged the operation at all hazards. He thought, however, that in future the procedure should be limited to more favorable cases. In advising for or against operation each case must be judged on its own merits. Derangements of the heart and vascular system must always be taken into careful consideration. If cardiac hypertrophy be not too marked or too greatly complicated by other conditions, it is not a contra-indication.

Therapeutic results.—He divided the 51 cases into two categories; those operated on up to July 1, 1902, and those since that date. In the first class 24 cases were available for the study of results. To prove that a cure or substantial amelioration of the condition has been effected it must be shown: (1) that there is a practical improvement, (2) that it is lasting, and (3) that it is steadily progressive. Only two of the 24 cases have resulted unsatisfactorily. One of these is that of a lady who remained without any evidences of nephritis for nearly four years. Four years and ten months after the operation (when one kidney alone was decapsulated), albumin and casts reappeared in her urine. Notwithstanding this, however, she feels quite too well at the present time to think of subjecting herself to another operation.

The second case is that of a young married woman, both of whose kidneys were operated on in 1901. For eight months she showed considerable improvement, but after that she had an attack of diphtheria, followed by a succession of colds, and there has since been no gain in her condition. Of the other cases, 10 have been radically cured and 12

greatly improved. Specimens of urine have been obtained from all but two of the patients.

Urine.—As a result of the operation a steady improvement in the condition of the urine is observed. Thus, there is an increased daily output of urea. Of the casts, the first to disappear are those of the tubules; later the granular and hyaline casts also disappear. The albumin, which also finally disappears, remains for a long time after the casts cease to appear. Dyspnea and circulatory disease likewise improve in varying degree.

Cases in physicians.—Of eight medical men operated on, three died; in two there was only moderate improvement, and in three the results were most gratifying. Letters were read from the last three, in which they described their cases and the results following the operation.

Cures.—In order that a case may be pronounced cured, fullest verification must be had of the disappearance from the urine of all albumin and casts for a period of at least six months. Among the cases cured there was one accidental death one year after the operation. The average period since operation is four years. Eight of the patients suffered from chronic interstitial nephritis. The cases of 1902 were, as a rule, of great severity.

DR. F. P. KINNICUTT laid stress on the point that any success in the treatment of the varied symptoms of uremia must be based upon an exact study of the clinical conditions in each individual case. A routine treatment for all cases, or even one method for the same patient in all attacks, is not only unscientific but inefficient and often harmful. Uremic dyspnea is most common in the interstitial forms of renal disease, probably from the almost constant arterial changes present. When the predominating conditions are endarteritis and hypertrophy of the left ventricle of the heart, success in relieving the dyspnea will be found largely proportionate to an ability to dilate the arteries. For this purpose nitroglycerin is the most available agent, but occasionally chloral hydrate will prove efficient when this fails, and the combination of morphine, given hypodermatically, with the vasodilators, will sometimes be more useful than the dilators alone. The limit of dosage with nitroglycerin should be the production of the physiological effect of the drug, but that effect must be obtained in order to render it efficient.

He next spoke of uremic vomiting, and, having referred to the varied pathological conditions on which this symptom may depend, he said that where there is catarrh of the gastric mucosa, and even in cases in which the vomiting is evidently due to toxemia, lavage often gives the greatest relief. Where it is associated with high arterial tension, the vasodilators alone are often efficient. In speaking of uremic convulsions he said that, omitting a consideration of puerperal eclampsia, convulsions may occur in acute nephritis, as well as in both the parenchymatous and interstitial forms of chronic Bright's disease. When they are met with in acute renal disease, whether in adults or children, venesection gives the most prompt and enduring results. As this phenomenon is associated with a high arterial tension, nitroglycerin and chloral are useful. When the urine is markedly diminished, intestinal irrigation with a normal salt solution of low temperature

(100° to 105°) may also be of service. It is Dr. Kinnicutt's practice to follow venesection by an intravenous injection of a saline solution of such a temperature, of double the amount of the blood withdrawn. In the convulsions of chronic parenchymatous nephritis the heart's action is usually feeble and the arterial tension low; so that vasodilators are contraindicated, and the best results can be obtained by the combined use of cardiac stimulants, intestinal irrigations, with salt solutions of a high temperature (115° to 120°) and hot packs daily for considerable periods. The convulsions occurring in chronic interstitial nephritis are usually associated with high arterial tension and hypertrophy of the left ventricle, often with endarteritis, and the arterial dilators, in combination with small hypodermatic doses of morphine, in his experience, constitute the best treatment.

DR. HOMER WAKEFIELD said that the Edebohls operation increased the blood supply of the kidneys, and he had no doubt that the increased amount of oxygen had much to do with the good results obtained. He had treated uremia largely in connection with heart disease, employing oxygen and the Schott treatment, which acted to a considerable degree like the nitrites; the aim being to increase the renal blood supply. He had also found the increasing of the alkalinity of the blood by means of colon injections of a saturated solution of sodium bicarbonate of great service. This, moreover, had a beneficial influence upon the heart and its action. He mentioned a case of general anasarca with uremia, in which the patient in three days was completely relieved of the uremic and other symptoms by the use of such injections.

DR. LEONARD WEBER said that although the patient presented by him this evening had had chronic uremia for a year or more previously, he ceased to present the symptoms of it immediately after decapsulation of both kidneys, and had had no return of them since, notwithstanding the fact that his urine still remained as full of albumin as ever. How had such improvement been brought about by decapsulation in this and other cases? In his opinion by the rapid growth of a vascular network spreading from the arteries of the fatty capsule upon and over the surface of the denuded kidney, and thus relieving the cramped and more or less obstructed circulation within the cortical substance, and collaterally carrying off venous blood and lymph through other channels than the renal vein. Whatever of regeneration of morbid epithelia in the glomeruli and tubules may take place after decapsulation will occur in consequence of the relief which the hyperemic kidney obtains by the newly established collaterals at its periphery. With the theory that an improved supply of arterial blood by the ingrowth of arteries from the fatty capsule more or less deeply into the renal cortex will regenerate the diseased kidney, Dr. Weber said he was not able to agree. His patient had not been cured of his nephritis, and he never would be. He also expressed his disbelief in the existence of such a thing as unilateral Bright's disease.

The president said that in chronic Bright's disease there was a deposit in the kidney all the way from the pelvis to the glomeruli. Consequently, the circulation from the center towards the periph-

ery was very greatly impeded, as the blood had to be driven through vessels compressed by the deposit around them. But as the result of decapsulation the blood was brought from the exterior directly to the glomeruli, and the ischemia of the organ was thus relieved. It seemed to him that the benefits to be derived from this procedure had as yet only been foreshadowed. As soon as the profession came to understand that the operative mortality from it amounted to practically nothing, it would be undertaken earlier and with much better chances of success; so that he could not but believe that the Edebohls operation had a wonderful future before it.

DR. WILLIAM H. THOMSON said that when he read Dr. Edebohls' paper published in December, 1901, it seemed to him that this operation marked an epoch in medical history. He could not think that the relief afforded by it was due simply to the removal of the pressure caused by the capsule. On the other hand, he did believe that by bringing in from the exterior a new blood supply a means was afforded of carrying off waste material; the condition thus established being comparable to that in the lungs, where, on account of the presence of the pulmonary and the bronchial arteries, there is normally a double blood current.

DR. EDEBOHLS said that the whole matter must resolve itself into one of experience. Before it is a settled thing, three, four or five years may be required. In the meanwhile, if those who have the opportunity to operate will follow up their cases with care, and if physicians will co-operate with the surgeons in the matter, the desired end will be the more successfully and quickly attained. After the operation the patients pass again into the hands of their medical attendants, and on the latter the obligation rests to study the subsequent course of the disease. If such studies are adequately carried out, it ought not to take many years before a just estimate of the value of the procedure can be arrived at.

THE OBSTETRICAL SOCIETY OF BOSTON.

BY MALCOLM STORER, M.D., SECRETARY.

MEETING of Dec. 16, 1902, DR. G. J. ENGELMANN in the chair.

DR. H. D. CHADWICK, by invitation, reported

A SERIES OF CASES OF MOVABLE KIDNEY.¹

DR. G. J. ENGELMANN: The paper of Dr. Chadwick is open for discussion. It is indicative of the progress in surgery that the pads and other appliances upon which we relied so entirely a few years ago are hardly referred to.

DR. J. G. BLAKE: I should like to ask Dr. Chadwick what is his explanation of the pain so generally seen in these cases?

DR. CHADWICK: I think that the most probable explanation is that it is due to kinks in the ureter.

DR. J. G. BLAKE: I have seen many such cases, especially among the Italians, who are racially inclined to submit to operation, with whom some form of apparatus must be used.

DR. G. J. ENGELMANN: Did I understand Dr.

¹ See page 281 of the JOURNAL.

Chadwick to state that the most annoying symptoms are due to kinks in the ureter and back pressure of urine?

DR. H. D. CHADWICK: I only mean to say that the crises of pain with tenderness and vomiting lasting two or three days are probably due to this cause.

DR. ENGELMANN: I think I have seen a number of these crises in which there was no urinary difficulty.

DR. J. G. BLAKE: I suppose that when a kink occurs there may be pain from pressure on the nerves and vessels as in a twisted ovarian tumor without any interference with the passage of urine.

DR. H. D. CHADWICK: Very likely this pain may be due to congestion. As to my technique, I have always used silk, as being less liable to cut through the capsule than silkworm gut. I have had but little hematuria. I do not cut into the substance of the organ, but split its capsule, bringing one flap up through a split in the quadratus muscle, while a fasciculus of muscle is brought into contact with the raw surface of the kidney. The substance of the kidney I regard as too friable to give good hold to a suture.

DR. E. REYNOLDS: I have done rather few nephrorrhaphies, as I have not been an especial believer in the necessity of the operation. The condition is generally due to loss of fat, and such patients usually do well on high feeding. I have limited my operations to cases in which the descent was sufficient to cause axis rotation. Of course one never explores a kidney without suspending it. I have generally used silk passed through the kidney substance. I have had only one failure, in which case a subsequent operation, combined with an appendectomy, cured the patient.

DR. F. A. HIGGINS: I should like to ask whether in all these cases Dr. Chadwick has been able to palpate the kidney, and whether he feels that a kidney that can be palpated should be operated upon?

DR. H. D. CHADWICK: I felt the kidney in all but one case. I do not by any means feel that all kidneys that can be felt should be operated upon. The right kidney can often be felt without there being any symptoms present.

DR. G. J. ENGELMANN: Dr. Chadwick has certainly seen an unusual number of these cases in a short time. I question whether some of them were not associated with general enteroptosis and whether relief of the general conditions would not have relieved the symptoms on the part of the kidney. While I have seen two striking cases in which the crises were evidently caused by distention of the kidney from backed-up urine due to a kink in the ureter, in many other cases the nervous crisis could not be regarded as due to obstruction.

DR. M. STORER: As an argument against the use of pads I believe it was Edebohls who said, as a transient hematuria follows even palpation of the kidney, it was only reasonable to suppose that a pad acts as a constant irritant. I have had the curiosity to examine the urine of a number of patients after palpating their kidneys, and in every case have found a very slight hematuria present for a few days. I should like to ask Dr. Chadwick whether this is also his experience. I cannot believe that pads always do harm, as I have seen a

number of patients much helped by them, with no gross evidence of irritation of the kidney.

DR. CHADWICK: My examination of the urine of patients after palpation of the kidney has not been systematic enough to be of any value. As to the question of the desirability of operation in these cases of movable kidney with nervous symptoms I can only say that I am in favor of operation because those operated upon have got relief, while in those not operated upon, rest, etc., has given relief but no cure; however, in certain cases in which the crises are infrequent, rest is well enough, I do not deny. All my cases were either chronic invalids or were every little while disabled for a longer or shorter time. Under such conditions it seems to me that an operation is indicated. I wish to reiterate that I think splitting the capsule a most important step in the operation; it certainly increases the chance of the kidney remaining in place if you can give it the two anchors afforded by the flap or capsule and the adhesions to the raw kidney surface.

DR. EDWARD REYNOLDS presented a paper entitled, —

A CASE OF INTESTINAL OBSTRUCTION FROM EXTREME DISPLACEMENT OF THE CECUM.

Recent Literature.

Practical Dietetics, with Special Reference to Diet in Disease. By W. GILMAN THOMPSON, M.D., Professor of Medicine in the Cornell University Medical College in New York City, Visiting Physician to the Presbyterian and Bellevue Hospitals. Second edition, enlarged and thoroughly revised. New York: D. Appleton & Co. 1902.

There is much that is good in this book, but at the same time much that is poor. It is certainly practical as well as interesting. The revision, however, has not been so complete as the medical public has the right to expect after a lapse of seven years. In many ways the book lacks a scientific spirit. Too often the avoirdupois system of weights and measures is employed, to the total exclusion of the metric. This is particularly unfortunate, for ready calculation is seriously hampered and the reader fails to become at home with the nutritive value of foods. The English system may apply to the older generation of doctors, but the students now leaving our schools are brought up in another way. Perhaps this is the explanation why the "calorie" occurs so rarely on the pages of this volume. Where it does occur it is frequently only as a citation from some other authority. In the long article on diabetes, for example, no mention is made of the calorie value of those foods so essential to the diabetic. Though the nutritive value of alcohol is frequently considered, if there is any mention of the actual calorie value of alcohol it has certainly escaped our attention. There is frequent mention of modern research, but one fails to gather the impression that the articles on the dietetic treatment of digestion were written with the work of Pawlow, v. Noorden, Moritz and v. Mering well in mind.

Gelatin given in large quantity can replace a portion of the albumin necessary for nitrogenous

equilibrium, but this fact is not mentioned, and, though this is perhaps excusable, the statement that "alcohol undoubtedly can be given the first place among the cardiac stimulants" is not. No consideration is given to v. Noorden's ideas on the treatment of Bright's disease.

There is not space to point out many statements at direct variance with the commonly accepted principles of medical treatment today, but the following will serve as examples:

(p. 670). A sudden change of diet is advised in diabetes! and no mention made of the danger of coma arising thereby. Nothing is said of the use of alkalis as medicine or in the food as a means to ward off coma. (p. 671). We believe diabetic patients react much more quickly to changes in the diet than the writer would lead us to conclude. We cannot see why cocoanuts (p. 674), containing 31.5% carbohydrates, are allowed diabetics, and cauliflower, containing 4.7%, Brussels sprouts 3.4% and rhubarb 3.6%, are excluded. The exclusion of liver (p. 675) is simply a repetition from the older textbooks. Liver from beef contains but 1.5%, that from veal 5.3% sugar-forming material. Nor do we understand why (p. 676) well-browned bread crust should be at all countenanced. The browning simply changes the starch to a body more nearly resembling sugar than itself. We are sorry the author does not state that skimmed milk and buttermilk have lost in their preparation that component of milk—fat—which is of greatest value to the diabetic, but retained that which is most harmful,—the sugar.

A Manual of Materia Medica and Pharmacology. Comprising all organic and inorganic drugs which are or have been official in the United States Pharmacopeia, together with important allied species and useful synthetics. Especially Designed for Students of Pharmacy and Medicine, as well as for Druggists, Pharmacists and Physicians. By DAVID M. R. CULBRETH, Ph.G., M.D., Professor of Botany, Materia Medica and Pharmacognosy in the Maryland College of Pharmacy; Professor of Materia Medica and Pharmacognosy in the University of Maryland Medical and Dental Schools. Third edition, enlarged and thoroughly revised, with 473 illustrations. Philadelphia and New York: Lea Brothers & Co. 1903.

Strictly speaking, this work cannot be considered as a textbook of pharmacology because the actions herein described are incomplete, antiquated and occasionally inaccurate. It is, however, a fairly good textbook of materia medica. The author gives a very good description of the principal plants and of the inorganic drugs used in materia medica. His division of the coal tar derivatives is a little confusing. The book is better adapted for pharmaceutical than for medical students, as the larger portion of the book is occupied with technical methods for the preparation of drugs. This division is never extensively taught to medical students nowadays, because of its inapplicability to present medical practice and because the time spent on the memorizing of technical processes can be employed to much better advantage in the thorough mastery of the action of drugs.

M. V. T.

THE BOSTON

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CONTROL OF THE BLOOD PRESSURE, THE CONTROL OF LIFE.

"No more strychnia in the treatment of shock" is the logical deduction to be drawn from the series of experiments by Dr. George Crile of Cleveland, whose remarkable report upon "The Means of Controlling the Blood Pressure" was read at the Boston Medical Library meeting on Jan. 19, 1903, and published in the last issue of the JOURNAL. Dr. Crile's industry in physiological problems has already been demonstrated by his monograph on surgical shock,¹ and the conclusions which he drew from this first series of experiments awakened the greatest interest. Dr. Crile believes that the essential feature of shock is the exhaustion of the vasomotor center which controls the tone of the peripheral circulation. In his last communication, however, he approaches so closely to the ultimate phenomena of life and death and with such startling and hitherto unexpected results, that the general medical world may properly await the confirmation of other experimenters before accepting and putting in practice any revolutionary method of treatment based upon these observations.

To the surgeon of today the essential fact brought out by Dr. Crile's work is that strychnia, the stimulant most universally employed in the treatment of shock, is of practically no value, and may even increase the condition it is intended to relieve. Dr. Crile's distinction between collapse and shock, by which he postulates a temporary inhibition of the vasomotor centres in collapse as opposed to an exhaustion of these centers in shock, seems justified by his experiments. Outside of the laboratory, however, pure collapse and pure shock in the experimental sense are of comparatively rare

¹ "Surgical Shock." J. B. Lippincott Company, Philadelphia, 1899.

occurrence, while combinations of the two in greater or less proportion are the rule. It is for this reason, perhaps, that strychnia has obtained a stronger position in the empirical treatment of the two conditions than would seem to be justified by the results of these experiments.

One adverse criticism which may be applied to Dr. Crile's work is that the phenomena of shock which he has studied in the laboratory and the methods of control of the blood pressure which he has devised, are all on what might be called an exaggerated scale. This exaggeration is not necessarily an essential feature of the experimental study of diseased conditions, but allowance must be made for it, nevertheless, in the practical application of the results. In this fact, perhaps, lies the apparent discrepancy between the clinical and the experimental determination of the value in treatment of strychnia, alcohol and other stimulants. The exposition of the temporary nature of the effects of saline infusion, on the contrary, will be readily accepted by the profession. Although a popular method of treatment, it has generally been found to act with more beneficial effect in cases of hemorrhage than in cases where the element of shock was more pronounced.

Dr. Crile's experiments can be criticised intelligently only by the trained physiologist, and such a criticism the medical world most eagerly awaits. The significance of his work, however, can be appreciated by the general medical public, and by no one more than the surgeon who comes in contact with this baffling phenomenon in the course of his daily work.

Our debt to Dr. Crile does not end with the results of his experiments. Advance in medical science proceeds by devious ways. One discovery by a new method of investigation brings in its train others of greater or less importance. These experiments have opened up to us a store of magnificent possibilities, and the domain of "surgical physiology" will soon be as diligently covered as that of "surgical pathology" in the few years just gone by. Even the student in the medical school will bring a greater interest to his work in the physiological laboratory by reason of this brilliant application to a practical problem of the very methods of observation in which he is being trained.

Supported by similar results obtained by other observers, Dr. Crile's work will revolutionize the treatment of surgical shock, and become an epoch-making advance in medical science. The prosecution of such confirmatory experiments, and their prompt publication, we clearly owe to Dr. Crile.

Dr. Harvey Cushing's paper on the Routine "De-

termination of Arterial Tension in Operating Room and Clinic," which accompanied Dr. Crile's report, indicates another step in progress along a line which is nearly parallel. The need for an accurate and numerical estimate of the condition of the arterial tension, to take the place of the vague and inaccurate impression given to the palpating finger of the more or less expert observer, has been appreciated for many years. Many forms of apparatus have been devised to serve this purpose, but up to the present time not one has obtained more than a local popularity. Objections on the score of inaccuracy, inconvenience, the need of long training or great skill in the use of the apparatus or on some other more obvious account, have been brought forward against them all. The Riva-Rocci instrument, which has been in use since 1896 in Italy, and which was introduced into this country in 1900, seems to have fewer defects and more advantages than any of the other instruments offered to our attention. It is not to be denied that errors occur in connection with the use of the Riva Rocci instrument. It registers only the systolic pressure and cannot be readily adapted to the accurate estimate of the minimum pressure. For this reason, fluctuations in the mean pressure may escape the notice of the observer. It is influenced even to the extent of 20 or 25 mm. of mercury by differences in the volume and consistency of the soft parts of the arm in different individuals. In the main, however, the apparatus is simple, easily made and repaired, and eminently practical. No special training is necessary in order to make observations with it, and so far as successive observations on the same patient are concerned, its accuracy is probably sufficient for clinical purposes.

The Riva-Rocci instrument in one form or another has come into general use. The interpretation of its figures, however, demands the analysis of large numbers of charts and the observation of an enormous number of cases. We are glad to know that a movement is on foot on the part of the Surgical Department of the Harvard Medical School to obtain a series of parallel observations on patients at the Massachusetts, City and Children's Hospitals, in order that such an analysis of the blood-pressure charts of surgical patients may be obtained.

In cerebral surgery, as pointed out by Dr. Cushing, precise information upon the arterial tension is of enormous value. In cases of collapse from hemorrhage, in shock, and during the course of severe abdominal operations, there is little doubt that similar information will be of value to the surgeon. If other surgical cases can be treated to greater advantage by reason of data provided by the Riva-Rocci apparatus, the fact will probably

appear as a result of this investigation. It may be that Dr. Cushing takes an enthusiastic view of the matter in his prediction that in appropriate cases the routine observations upon blood pressure will soon come to occupy the same position that pulse and temperature observations occupy at present, but enthusiasm is necessary to the introduction of every new procedure in medicine, and for this enthusiasm we are duly grateful.

THE ROCKEFELLER INSTITUTE.

EVEN in these days of munificent bequests and large opportunities for scientific investigation, we cannot but be impressed with the plans and scope of the perfected Rockefeller Institute for Medical Research. The outline of the general scheme, as now made public, we have given in our issue of Feb. 26. No doubt to many persons the Rockefeller Institute, although it has been in existence about two years, comes as a new name and a new enterprise in the widening field of medical research. As a matter of fact, the plan, started somewhat modestly, as such things are now estimated, has been justifying its existence for the past two years. Grants of money have been made to promising students in various parts of the country who have been carrying on their researches more or less independently. A careful study of the general situation has now led the directors to the conviction that a central institute, with its own buildings and under the immediate jurisdiction of a single person, will best subserve the scientific needs of the future.

The novelty of the plan lies in the establishment of an institution the sole work of which will be investigation; in the separation of such work from the professional schools in connection with universities; in the severance of investigation from systematic teaching; in the adequate endowment which will render it possible to secure highly competent men both for heads of departments and for subordinate positions. In all of these ways the new plan marks a definite departure from hitherto recognized plans of medical investigation.

In this country so far as we know no systematized attempt has been made hitherto to maintain an institution solely for the comprehensive study of medical problems. Recently a single professorship in physiology has been established at the University of California, the incumbent of which is not obliged to teach, and in foreign countries a small number of laboratories and institutes are prosecuting research as a primary object. In general, however, both here and in Europe, the body of scientific workers have been associated with the universities, combining the functions of teaching

and research as their tastes and capacities dictated. The development of the situation represented by the Rockefeller Institute has been natural and inevitable. Many professorships in our best medical schools have been endowed or otherwise provided for and their functions separated from medical practice, but not from teaching, which has naturally remained of paramount importance. Freed from the exigencies of practice, the holders of such professorships have been in a measure free to prosecute original study, and such study has rightly been expected if not demanded of them. This compromise with research has very naturally yielded to the popular demand that research be made an object in itself, unhampered by the claims of teaching. The final result must be institutions of the Rockefeller type, from which the elementary student is excluded. The university schools may provide trained workers, but until they are far more abundantly endowed than at present they cannot sustain co-operative investigation for its own sake. This the Rockefeller Institute purposes to do, and by its organization and proposed endowment is amply able to do.

The severance of research from teaching is the step of importance in this new movement, and it is worthy of very serious consideration. In the first place, the universities are sure to suffer, unless they can attract men by the same means. This is at least unlikely for many years to come, nor is it obvious that such a perversion of the original aims of a university is in all respects desirable.

Commenting on Dr. Simon Flexner's appointment as director of the Rockefeller Institute, the *Philadelphia Medical Journal* regrets his departure from the University of Pennsylvania, and sees in it an ominous sign for the future greatness of university medical schools.

"It begins to look, indeed, as though our old established schools are to have rather formidable rivals in some of the great new institutes which our multi-millionaires are founding. What with the immense financial resources of these new endowments, and their consequent ability to pick off the very best men in the scientific field, it looks as though the older schools and universities will be the sufferers."

This is unquestionably true; however we may look at it, the universities must take a second place as centers of research if such institutes are to be established with practically unlimited resources at their command. Productive scientific men are rare; there are by no means enough to go round, and they are naturally inclined to accept those positions which offer them the necessary financial inducement with the means of untrammelled investigation.

This is not in any way to be regretted; the universities must simply adjust themselves to the new situation.

THE ENDOWMENT OF TEACHING.

IN view of what we have just said relative to the Rockefeller Institute for Medical Research, it is at once evident that university medical schools must provide endowments for the maintenance of a high standard of teaching and for the support of research, if they are to maintain their prestige.

The present situation is sufficiently deplorable. In our oldest established medical schools a certain number of professorships are more or less sufficiently endowed, and therefore throw no burden, or only a modified burden, upon the general university funds. Many others have no endowment whatever, and the great majority of medical teachers are so inadequately remunerated for their services that it is wholly impossible for them to give this teaching or investigation the place of importance it deserves, and equally unreasonable for the university to expect more than a partial allegiance. So long as men hold positions as teachers in medical schools for the purpose of gaining practice thereby, and the university authorities, through choice or necessity, encourage this attitude, teaching will suffer. Teaching must be made an end worthy of the best efforts of those who undertake it; it must be recognized as a difficult art to attain, and when attained it must be regarded as worthy of financial acknowledgment. The dignity of teaching and the enthusiasm of teachers cannot be upheld by any other method. Teachers should be remunerated according to their capacities and experience, and should, in proportion, be required to subordinate outside interest to the work of teaching. If abstract research is to be liberally endowed it is more than time that teaching in all its branches should also receive recognition. The vitality of an institution of learning must always ultimately be dependent upon the enthusiasm of its teachers, whatever their grade may be.

This problem of endowment is facing all of our medical schools. Its importance has again and again been insisted upon, but there remains a popular impression that when buildings and equipment are provided, the work of medical teaching and investigation will somehow go on as it has hitherto. It must, however, be remembered that new buildings, new equipment and expanding knowledge bring renewed responsibility, and that if our university medical schools are to compete in productivity with adequately endowed institutes of research, they must look to the resources available

for the encouragement and maintenance of teaching and investigation.

Very recently, through Dr. H. P. Bowditch and Dr. J. Collins Warren, for the Faculty of Medicine of the Harvard Medical School, a statement in circular form has been issued, setting forth the needs of the school in the immediate future. It is stated that the opportunities for work in the new buildings soon to be erected cannot be fully utilized with the amount of money likely to be at the disposal of the faculty. Appended is a list of professorships still remaining unendowed, for which amounts ranging from \$100,000 to \$30,000 are needed. It is urged that money given to this end will serve as a lasting memorial to the donor and be of the very greatest use to the school by freeing funds which could thereafter be devoted to other necessary uses. Smaller sums of money may advantageously be given for the endowment of departments, for the maintenance of libraries, the purchase of apparatus and other necessities of departmental work. Finally the foundation of scholarships is a welcome type of gift, calling for a relatively small amount of money.

However considered, the desirability and increasing necessity of generous endowment of medical education is becoming more and more apparent each year. With the increasingly high standards of admission to medical schools, with the limit which must finally be set to the number of students, with the more elaborate systems of clinical teaching now in vogue, and, above all, with the rapidly widening field of the medical sciences, must come a tax upon the resources of institutions which is already felt, but which is likely to increase enormously in the future. This exigency must be met by liberal endowment. There is no more pressing need in the present state of medical education.

TYPHOID IN MASSACHUSETTS.

IN contrast with the typhoid epidemic in Ithaca, N. Y., it is of interest to note the number of cases of typhoid at present in Massachusetts, and the effect which public control of the water supply has had in controlling this disease. Within seven days, recently, there were only thirty-six cases of typhoid fever in Massachusetts, of which six were in Cornell students who had contracted the disease in Ithaca. Seven of the cases occurred in Lowell, where it is said that the mills take their water supply from polluted sources, and that the employees, having access to it, drink the water.

The number of deaths from typhoid fever in 1901 in Massachusetts was smaller than in any single year since 1842, when registration was begun. In 1901,

in thirty-three cities, the death-rate from typhoid was slightly more than one fourth as large as it was in the same cities thirty years ago. In the decade ending 1865, only 25% of the population used water over which the authorities exercised control, and the death-rate from typhoid fever in those years was 92.9 per 100,000 inhabitants. In 1875, 41% of the population had public water, and the death-rate was 80% per 100,000. Thus the death-rate decreased with the extension of the public water system, until, in 1901, 90% of the people of Massachusetts were supplied through well-kept public water systems, and the death-rate was 19.5 per 100,000. With continued and increasing care of the public water, it may be confidently expected that typhoid fever as well as other water-borne diseases will become medical curiosities.

MEDICAL NOTES.

A HIGH BIRTH-RATE AT CHICAGO. — According to the bulletin of the Chicago Health Department, all available trustworthy data most conservatively handled go to demonstrate that, while the birth-rate of the whole United States increased, according to the twelfth federal census, only 1.11% in the intercensal period 1890-1900, the birth-rate of Chicago increased *five times* as much, or more than 5.3% during the same period.

TENTS FOR TUBERCULAR PATIENTS. — To avoid the necessity of waiting for a considerable time in order to erect hospital buildings for the accommodations of tuberculosis patients among the poor of the city, the president of the New York (City) Health Department has submitted to the mayor for his approval a plan proposed by Dr. H. M. Biggs, the chief medical officer of the department. This consists of the erection of tents, with wooden sides about three feet high, each tent to be some twenty-five feet square and to accommodate two patients. In front of each tent there would be a veranda, sheltered with lattice work, allowing the patients to sit outdoors; the whole could be erected at a small expense.

HANGING FOR TYPHOID FEVER. — If the dictum of the zealous sanitarian that "for every case of typhoid fever some one should be hanged" is to be accepted, then the hangman is overdue at Ithaca, N. Y., where at last reports typhoid continued to claim an unabated list of victims.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 11, 1903, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: Diphtheria 27, scarlatina 37, typhoid fever 3, measles 18, smallpox 1.

THE EDUCATIONAL VALUE OF THE MEDICAL SOCIETY. — The New Haven Medical Association lately celebrated its one hundredth anniversary, and received congratulations. It seems to be useful and active notwithstanding its age and the prevailing scepticism among the younger brethren as to the value of anything not bearing the title of Academy.

Dr. Osler's address on the occasion, in this issue of the JOURNAL, is a very felicitous contribution to the subject he chose.

REQUESTS TO HOSPITALS. — By the will of the late Jacob H. Hecht, among many others the following bequests are made: \$5,000 each to the Massachusetts General Hospital and the Boston Lying-in Hospital; \$500 to the Industrial School for Deformed and Crippled Children, and smaller amounts to various other hospitals and similar charities.

Mr. F. F. Ayer has given to the Lowell General Hospital \$100,000, and \$5,000 more to pay the floating debt, provided the balance needed for that purpose is raised.

The Misses Schurz of New York have given \$3,000 as a Schurz Memorial Fund for the care of needy students at the Stillman Infirmary, Cambridge.

RESIGNATION OF DR. GAGE. — Dr. Thomas H. Gage has resigned from the Board of Trustees of the Worcester Insane Hospital, after a continued service of twenty-seven years. The resolutions of regret adopted by the trustees on his resignation ascribe in large measure to his advice and attention the great development of the institution.

LECTURES TO THE BOSTON CITY HOSPITAL NURSES. — A course of four lectures on sociological topics is being given this month to the third-year pupils in the Boston City Hospital Training School for Nurses. The following are the subjects: On March 6, "The Five Great Duties of the Twentieth Century," Rev. E. E. Hale, D.D.; on March 13, "Spiritual Principles and Social Progress," Rev. George Hodges, D.D.; on March 20, "Industrial Training for Deformed and Crippled Children," Dr. R. W. Lovett, Mr. F. I. Cotting and Miss Mary M. Perry; on March 27, "Sociological Aspects of Sanitation," Prof. W. T. Sedgwick.

NEW YORK.

DEATH RATE IN FEBRUARY. — The mortality in the city during the month of February represented

an annual death-rate of 20.81 against 19.32 in January and 21.79 in February, 1902. The corrected death-rate, excluding non-residents, and infants under one week old, was 19.49. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from scarlet fever increased from 14.75 in January to 18 in February; of deaths from measles, from 7.75 to 11; from typhoid fever, from 8.75 to 10.5; from influenza, from 5.25 to 34.25; from pneumonia, from 158.75 to 196.5; from bronchopneumonia, from 84 to 90.75; from acute bronchitis, from 37 to 49; from pulmonary tuberculosis, from 169.5 to 182.25; and from organic heart diseases, from 104.25 to 108.25. Influenza is decidedly more prevalent and fatal this season than last. Thus, while in the last week of February 52 deaths were accredited to it, during the corresponding week of 1902 there were only 10. A considerable proportion of the deaths from pneumonia are also no doubt to be attributed indirectly to influenza. There were very few diseases which showed a decline in mortality, although there were no deaths from smallpox during the month, while in January there were two. The weekly average of deaths from diphtheria and croup decreased from 49.75 to 44.75, and of deaths from Bright's disease and nephritis, from 134.75 to 125. The weekly average of deaths from cancer was one less.

APPOINTMENTS. — At a meeting of the trustees of Columbia University, held March 2, the resignation of Dr. George L. Peabody, Professor of *Materia Medica* and Therapeutics in the medical department, was received and accepted, the resignation to take effect at the close of the college year. It was announced that the work in physical training throughout the university was to be unified and placed under the direction of Dr. Thomas D. Woods, now occupying the chair of physical education in Teachers' College. Dr. Livingston Farrand, Adjunct Professor of Psychology, was promoted to the chair of anthropology, and Charles A. Strong, for several years Lecturer on Psychology, to the chair of psychology. Both these professorships are in the Faculty of Philosophy.

METHODIST EPISCOPAL HOSPITAL, BROOKLYN. — At the services in the Hanson Place Methodist Episcopal Church, Brooklyn, on February 22, \$20,000 was subscribed by members of the congregation for the Methodist Episcopal Hospital in that borough founded by the late Mr. Seney. This is the first step towards the raising of a fund of \$500,000 for the hospital, the securing of which Mr. and Mrs. William Halls, Jr., have made a condition for a proposed gift of \$125,000 to the institution.

A NEW SANATORIUM FOR CONSUMPTIVES. — It is announced that the Stony Wold Sanatorium for women and children suffering from incipient tuberculosis, an institution in the Adirondacks which many New York people are interested in, is to be opened in August next. It is situated at Lake Kushaqua, where 1,200 acres has been secured, and a central building and one dormitory are now nearly completed, while the foundation for a second dormitory has been laid. The estimated cost of the sanatorium is \$200,000, and of this, \$140,000 has been raised.

THE EPIDEMIC AT ITHACA. — Up to March 5 the number of cases of typhoid fever in Ithaca is said to have been about six hundred, while there were probably two hundred cases elsewhere which had been contracted there. The number of deaths was given as forty. On March 2 seven new cases were reported for the preceding twenty-four hours, and another Cornell student died of the disease at Auburn, N. Y. At the election on that day the citizens of Ithaca decided in favor of municipal control of the water supply by a vote of 1,335 to 30. Eight new cases of the fever were reported on March 3 and three new cases on the 7th. A bulletin issued by the State Department of Health on March 4 has the following reference to the causation of the epidemic: "By what means either of the three small streams furnishing the water supply became infected thus to produce this abrupt, unseasonable outbreak has not been determined to full satisfaction, but of unusual conditions, there was emptied upon the ravinelike banks of one a body of foreign laborers during the autumn and early winter, building a dam, who departed with the advent of frost. Among them there were probably carriers of typhoid germs, which the first soft weather carried into the stream." From a report recently made by inspectors of the local board of health, after an examination of the watershed from which the Ithaca water company derived its supply, it seems evident that the city's water sources have been used as sewers for the adjacent rural districts. A prominent citizen of Ithaca is quoted as saying: "When the board of health published that report, it signed, sealed and delivered its own indictment, and it published the record of its own everlasting shame."

DIPHTHERIA AT MORRISTOWN, N. Y. — A severe outbreak of diphtheria, in which more than twenty deaths have occurred, is reported at Morristown, N. Y., a small village eleven miles from Ogdensburg, and situated on the banks of the St. Lawrence at a point where many travelers cross to and from Canada.

GOVERNOR ODELL'S CENTRALIZING POLICY.—In the thirteenth annual report of the State Charities Aid Association, just issued, lack of confidence in Governor Odell's centralizing policy is expressed in very plain language. It describes the amendments made last year to the insanity law and to the state charities law, and in speaking of the latter says: "Before the amendments were introduced, two conferences were held between the governor, the State Board of Charities, and the special legislative committee appointed to draft the proposed amendments. The result of these conferences was that the changes originally planned were much modified and the bill when finally introduced proved to be less radical than had been feared. Only one of the eleven articles of the state charities law was amended, and this was the article on the regulation of the finances of the state charitable institutions." The report then goes on to say: "Here, as in the amended lunacy law (the changes in which abolished the boards of managers and transferred their powers to the state commission in lunacy), the chief innovations are the new forms and responsibilities conferred upon the governor. . . . It is not believed that this extreme centralization of power will be of benefit. It would seem that the governor of the state should appoint as members of the State Board of Charities and the State Commission in Lunacy men who could be trusted to attend to the affairs of their departments with intelligence and integrity. To require that all questions of importance be submitted to the governor is to discourage able men from accepting positions in which little real responsibility or authority is allowed them."

WADLEIGH HIGH SCHOOL FOR GIRLS.—In the last week in February there was publicly opened by the mayor and board of education the Wadleigh High Schools for Girls, a model structure which offers a pleasing and remarkable contrast to the schoolhouses of former days. Its appointments include an auditorium seating more than twelve hundred persons, and believed to be one of the finest in the country, one very large and fully equipped gymnasium, with adjoining locker rooms and shower baths, on the fifth floor, and two smaller gymnasiums on other floors, one cooking room, four physical laboratories, two chemical, two physiological, and three biological laboratories; besides physical, chemical, and other lecture rooms well furnished with apparatus. In the basement there are a lunch-room with an air-space of 10,500 cubic feet, light, airy, and attractive, where the pupils may eat their luncheons brought from home, or obtain an excellent meal at reasonable rates, and a teachers' dining-room, kitchen, and retiring-rooms.

Correspondence.

THE STUDY OF OPHTHALMOLOGY IN FREIBURG.

FREIBURG IN BREISGAU, March, 1903.

MR. EDITOR: Thinking that a description of the Freiburg Augenklinik may interest some of your readers, I send the following. The building is not new and is considered by some of the staff to be somewhat inadequate to the demands made on it. To my eyes, however, it seems, with one or two small exceptions, very complete. The ground floor contains a large hall which is used as a place for the Poliklinik and also for lecturing purposes; a dark room for ophthalmoscopy and skiascopy; a large room for the examination of private cases, where the more delicate instruments are kept and adjoining which is the operating room. Attached to the operating room is a small antechamber used for anesthesia and for the large sterilizer. On the other side of the Poliklinik is the matron's room, the waiting room, the professor's private office and the laboratory. Upstairs in the first story are several large and small rooms containing beds for some thirty-five patients, and in the second story are a number of rooms for private cases.

Directly opposite the Klinik is the main hospital building; and on either side are the surgical, nose and throat, and ear departments.

The staff consists of a professor and three assistants, the first being a privatdocent; in addition there are usually one or two volunteer assistants and also a couple of students. During the summer semester work begins with a lecture at 7.15 A.M., which lasts exactly forty-five minutes; after this the ward visit is made and the various house patients examined and treated. Operations are performed twice a week. At 9.30 the Poliklinik begins and the patients are usually not disposed of until between twelve and one. In the afternoon there is usually a course in refraction or ophthalmoscopy, the new admissions are examined and laboratory work is done. In every branch of the work one feels the influence of the chief, Professor Axenfeld. He was made full professor at the age of thirty-one (it is said that at that time he was the youngest professor in Germany), and was called to Rostock, which place he left in October, 1901, to take charge of the more important Freiburg Klinik. Although now only ten years an ophthalmologist, he is a recognized authority, and his original work and that of his scholars covers a vast variety of subjects and would fill several volumes. Of a most progressive mind, he keeps abreast of medical progress, and only the latest scientific apparatus and methods will satisfy him. The large Zeiss corneal microscope is in constant use; the new Volkmann magnet, a great improvement on the giant magnet of Haab, has been recently installed and has given the greatest satisfaction. The siderscope, for and against which so much has been written, has been of great practical advantage here. For the demonstration of the fundus the Thorner apparatus is in use, and to illustrate the lectures a magnificent new projection apparatus has recently been secured. This is equally good for mounted specimens and for drawings. For refraction the Hess skiascope has been found convenient, and it may interest American critics of foreign methods to learn that mydriatics are employed in refraction work and young children thoroughly examined. The teaching consists in clinical lectures three times a week, illustrated with the projection apparatus, clinical instruction in ophthalmoscopy three times a week, and refraction twice a week. In addition, during the winter semester, there is a free course of lectures on the relation of the eye to general medicine. Every graduate of medicine in this, as in other Continental countries, is trained in the use of the ophthalmoscope. The operative asepsis is good, although not so rigid as in general surgery, the hands are carefully prepared and the instruments are boiled five minutes. The patient is scrubbed with soap and water, and the conjunctival sac wiped out with sterile salt solution. Although after extraction, iridectomy and dissection, the bandage has been largely replaced by the wire protector, Professor Axenfeld uses it frequently in other cases, and is a firm believer in the advantages of bed treatment.

The laboratory consists of two rather small rooms, containing desks for twelve, and is fitted with all the necessary apparatus. During my stay I saw the places occupied by representatives of many nations — four Germans (one of Austrian birth), two Italians, two Russians, two Japanese, one Canadian and one American. In addition there were visitors from France, England and Roumania. In the laboratory there is always excitement and activity — some one has just published his investigations or is about to publish them; the professor has assigned to some one a case of unusual interest, or perhaps a new bacterium has been found. In fact, a thousand things of interest happen daily. Here the professor presides and devotes several hours each day to the various lines of investigation which are being carried out under his direction. Every case of conjunctivitis is examined bacteriologically and carefully recorded, the most frequent cause in this region being the diplobacillus of Morax and Axenfeld. The Koch-Weeks bacillus and the pneumococcus are also not infrequently found. Gonorrheal ophthalmia is not a common disease here, and trachoma is rare, occurring mostly among the Italian laborers. A form of subacute irido-cyclitis of doubtful etiology is frequently observed among the inhabitants of the Black Forest, on the border of which Freiburg lies. In addition to his other duties Professor Axenfeld is editor of the *Klinische Monatsblätter für Augenheilkunde*. Almost once in two weeks he holds a *Referatabend*, to which he invites his assistants and co-workers, as well as the assistants from the allied clinics. A simple supper is served and one or two hours are devoted to the reporting of recent monographs and to the discussion of subjects of interest.

Taking it as a whole, it would be hard to imagine a more satisfactory place than this for the student of ophthalmology. The larger clinics demand so much of the professor's time that the student gets but little individual attention. Here in Freiburg, however, one comes in contact with the best type of the German man of learning, whose mission in life is teaching and investigation, and who goes out of his way to instruct and help those who are working under him.

For leisure hours the hills and valleys of the Black Forest offer a great variety of pleasant excursions.

Very truly yours,

GEORGE S. DERBY, M.D.

PROPHYLAXIS OF VENEREAL DISEASES.

NEW YORK, March 4, 1903.

MR. EDITOR: At the last (fifty-third) meeting of the American Medical Association, held at Saratoga Springs, June 10-13, 1902, a joint resolution from the Sections of Cutaneous Medicine and Surgery and Hygiene and Sanitary Science was introduced in the House of Delegates as follows:

"Whereas, There is a burning necessity to check the spread of venereal diseases, and, assuming that the States cannot with impunity ignore the condition, it lies in the province of the medical profession to discuss and recommend to the respective State legislatures and municipalities means not regulative, but social, economic, educative, and sanitary in their character, to diminish the danger from venereal diseases.

"Resolved, That this Section on Cutaneous Medicine and Surgery of the American Medical Association invite the Section on Hygiene and Sanitary Science to co-operate with the Section on Cutaneous Medicine and Surgery in bringing about a propaganda in the different States looking toward a proper recognition of the dangers from venereal diseases, and to arrange for a national meeting under the auspices of the American Medical Association for the Prophylaxis of Venereal Diseases, similar to the International Conference for the Prophylaxis of Venereal Diseases, which meets again this year at Brussels, under the authority of the Belgian government."

This was later submitted to the House of Delegates, which endorsed the action of Section, and adopted the following:

"Resolved, That a joint committee of six from the Sections on Hygiene and Sanitary Science and Cutaneous Medicine and Surgery be appointed by the president to

stimulate study in and uniform knowledge of the subject of the prophylaxis of venereal diseases, and to present to the American Medical Association a plan for a national meeting, similar to the International Conference for the Prophylaxis of Venereal Diseases, which meets again this year in Brussels, under the auspices of the government of Belgium."

The Committee on Prophylaxis of Venereal Diseases consists of:

Dr. Henry D. Holton, chairman, Brattleboro, Vt.; Dr. Ludwig Weiss, secretary, 77 East Ninety-first Street, New York; Dr. George M. Kober, 1600 T Street, Washington, D. C.; Dr. W. H. Sanders, Montgomery, Ala.; Dr. J. Duncan Bulkley, 531 Madison Avenue, New York City; Dr. Frank H. Montgomery, 100 State Street, Chicago, Ill.

The peculiar social, racial and political conditions of our country are so different from those on the continent that they necessitate an expression of solely American ideas on this mooted question, both from a socio-economic and sanitary point of view.

The committee desires the support of the medical profession and the aid and powerful collaboration of the medical press of the country to help them in this work. It takes the liberty of soliciting expressions and views editorially and otherwise, and would be glad of personal correspondence from those supporting the movement and who will contribute by papers, etc., to make it a success in case the House of Delegates should favor the holding of such a congress.

By giving this a place in your esteemed paper the committee feel that you will have aided materially in forwarding the work entrusted to them.

I remain, with thanks, very truly yours,

LUDWIG WEISS, M.D.,

Secretary of Committee
on Prophylaxis of Venereal Diseases.

Miscellany.

RESOLUTIONS ON THE DEATH OF ERNEST GIBBORN BURKE, M.D.

In the death of Dr. Ernest Gibborn Burke, the Fellows of the Norfolk South District Medical Society feel a deep sense of sorrow, and adopt the following memorial:—

Although Dr. Burke's medical career was of short duration, yet it gave promise of entire success. Enjoying the best means of education in college and medical school, he faithfully applied himself to laying a solid foundation for his chosen profession. Upon this foundation he was not, in the providence of God, permitted to build high, but he built well. His keenness of discernment, his patience in deliberation and his wide knowledge, the fruit of a concentrated experience, gained for him the confidence of his fellows, while at the same time he endeared himself to his patients by his sincerity, sympathy and genuine kindness.

To all who knew him were revealed in him the qualities of the scholar, the gentleman and the true man; we can truly add with pride that the spectacle, pathetic but inspiring, of his manly struggle with the inevitable, offers an example and a lesson by which each one may profit. Such a life, however short, cannot be lost to the world, but must be remembered with the deepest satisfaction.

The members of this Society offer to his bereaved family and relatives their heartfelt sympathy in this irreparable loss and their deep affliction.

Resolved, That this memorial be entered upon the records of this Society, that a copy of the same

be forwarded to the family of Dr. Burke, and that a copy also be furnished for publication to the Quincy papers and to the BOSTON MEDICAL AND SURGICAL JOURNAL.

S. W. ELLSWORTH, *Secretary*.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

At a conference on the organization of the medical profession in the Southern States, recently held in New Orleans, with reference to the next meeting of the American Medical Association in that city, Dr. George H. Simmons of Illinois, secretary-editor of the Association, made in his address some suggestions which deserve notice. He stated that nearly 80,000 physicians in the United States do not belong to medical societies; this means two thirds of the medical profession. Reorganization, he said, should be done on business and logical principles. We must know how many physicians there are in each state and their relation to the ethical profession. At present we have no way of knowing the number of physicians in this country, as the directories carry names of dead men, horse doctors, and the same man may be registered from several states at one and the same time. The American Medical Association should be the Bureau of Information in this field. We cannot have all men in the societies, but we do want the list of them. Licensure does not mean qualification, and many a man practices medicine who has no right to do so.

In order to perfect the organization in the territory covered, it should be districted, and the profession should advise itself of every man privileged or not to practice medicine. The medical history of every man should be kept, and such information should be filed for reference in every state.

With the idea of weeding out evils, it is the purpose of the Association to drop 1,000 names before March 1. This includes those who are known to have forfeited the rights of membership through irregular practice. The only way in which quacks can be detected and expelled is through the local and state societies.

Further he stated that eleven states had already adopted the constitution proposed by the Association, and have found its provisions adequate. Michigan has raised its membership from 400 to 1,600 on this account, and Ohio has done as well. Arkansas is in line, and Alabama has for some time been using the delegate system.

When states are districted, this should be done according to accessibility. The councilors must see that county societies are kept alive and that all eligibles are brought into line.

THYROID EXTRACT IN A CASE OF HEMOPHILIA.

An interesting case of severe hemophilia, treated with thyroid extract, is reported in *The Medical News* of February 28. The patient was a fifteen-year-old Hebrew. Four of his mother's brothers had bled to death after circumcision, and two of his own

brothers had died in a similar manner. His only sister had always been well. The patient had never been strong; in childhood he had had frequent symptoms of hemophilia—severe nose bleeds, alarming hemorrhages with the falling out of his first teeth, repeatedly swollen joints, and extensive subcutaneous hemorrhages following blows. On account of the family history, he had never been circumcised.

He came under treatment for spontaneous severe attacks of hematuria of a year's duration, accompanied by occasional renal colics, produced by clots passing through the ureter. Microscopical examination excluded hemoglobinuria.

The boy, on his first visit to the Post-Graduate Hospital, was extremely cachectic, short of breath, and had a very weak pulse of 130. The usual internal styptics were employed without avail for two or three weeks; and the boy was thought by his parents to be dying. As an experiment, thyroid extract was then ordered, five grains three times a day, all other medication being stopped. Improvement set in at once, and at the end of a week the boy was brought to the clinic with a fair color and better strength than he had known for a long time; he had normal urine and a fairly full pulse of 100.

The improvement thus begun continued uninterruptedly for the next nine months, or as long as the case was followed. During this period, the boy took thyroid extract continually; he had no return of hemophilic symptoms; he grew considerably, and was relatively stronger and mentally more alert than he had been for years.

A case of continued bleeding from granulation tissue in the prostatic sinus, in a patient with nephritis, is reported by Dr. Fuller in the same article. Severe secondary hemorrhage following curettage of this tissue was controlled promptly by thyroid extract, and the patient left the hospital, with clear urine; the nephritis, however, continued to progress.

A STATE SANATORIUM ACT VETOED.

IN November, 1902, Governor Bachelder of New Hampshire was presented with the report of the committee previously appointed by him to consider the question of the establishment of a state sanatorium for consumptives. The committee consisted of Drs. Ezra Mitchell, president, of Lancaster; Nathaniel G. Brooks of Charlestown, and Irving A. Watson of Concord as secretary. Their report led to the passage by the legislature of a bill appropriating \$50,000 for such an institution. Governor Bachelder has now vetoed the bill, stating, in his message, that the home, once established, cannot be abandoned by the state, and cannot be made self-supporting; and that, with the appropriations of the present legislature exceeding those of any previous year, he is not justified in adding those necessary for a sanatorium, which is certain to require greater appropriations in the near future. At best, the home could accommodate but a very small proportion of the consumptives of the state, while all others, as well the subjects of all other diseases, would be taxed to maintain a favored few.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 28, 1903.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Whooping cough.	Scarlet fever.	
New York . . .	3,785,156	1,578	463	20.72	23.03	2.69	1.77	1.89	
Chicago . . .	1,885,000	713	191	23.97	22.71	1.82	1.68	1.40	
Philadelphia . .	1,378,527	639	186	18.47	16.90	2.08	1.09	1.63	
St. Louis . . .	618,481	—	—	—	—	—	—	—	
Baltimore . . .	533,712	212	66	16.98	20.75	.94	—	.47	
Cleveland . . .	427,731	—	—	—	—	—	—	—	
Buffalo . . .	387,994	—	—	—	—	—	—	—	
Pittsburg . . .	351,745	138	59	34.56	23.53	4.41	9.55	—	
Cincinnati . . .	335,140	—	—	—	—	—	—	—	
Milwaukee . . .	315,307	—	—	—	—	—	—	—	
Washington . .	295,103	—	—	—	—	—	—	—	
Providence . . .	191,230	113	34	14.28	31.25	—	4.40	—	
Boston . . .	603,163	240	47	16.67	21.25	.83	.83	.83	
Worcester . . .	132,044	35	15	14.28	22.57	—	—	—	
Fall River . . .	115,549	44	25	11.36	40.69	—	—	2.27	
Lowell . . .	101,959	43	15	23.25	20.92	2.32	4.65	2.32	
Cambridge . . .	98,639	30	6	16.67	16.67	—	—	6.67	
Lynn . . .	72,497	24	4	12.50	—	—	—	—	
Lawrence . . .	69,766	21	11	14.28	4.76	—	—	—	
Springfield . .	69,339	10	2	30.00	10.00	10.00	—	—	
Somerville . . .	68,110	24	6	16.67	23.00	4.16	4.16	14.28	
New Bedford . .	67,198	35	14	34.29	17.14	2.85	—	—	
Holyoke . . .	49,286	14	7	7.14	21.42	—	—	—	
Brockton . . .	44,873	12	4	25.00	—	—	—	—	
Haverhill . . .	42,104	10	3	30.00	20.00	—	—	—	
Newton . . .	37,794	6	1	16.67	16.67	—	—	—	
Salem . . .	36,876	12	3	—	—	—	—	—	
Malden . . .	36,326	8	2	—	—	—	—	—	
Chelsea . . .	35,876	12	3	25.00	8.33	—	—	—	
Fitchburg . . .	35,069	13	8	7.70	13.40	—	7.70	—	
Taunton . . .	33,656	9	2	11.11	22.22	—	—	—	
Everett . . .	25,620	8	1	50.00	—	12.50	—	12.50	
North Adams . .	27,862	7	1	—	28.60	—	—	—	
Gloucester . . .	26,121	8	1	25.00	—	12.50	—	—	
Quincy . . .	26,049	6	1	—	66.63	—	—	—	
Waltham . . .	25,138	6	3	30.00	10.00	—	10.00	—	
Brookline . . .	22,608	10	4	33.33	11.11	—	—	—	
Pittsfield . . .	22,589	5	1	—	40.00	—	—	—	
Chicopee . . .	21,031	10	7	—	40.00	—	—	—	
Medford . . .	20,362	7	2	—	28.60	—	—	—	
Northampton . .	19,883	5	0	—	—	—	—	—	
Beverly . . .	15,302	3	1	—	33.33	—	—	—	
Clinton . . .	15,161	3	2	—	33.33	—	—	—	
Leominster . . .	14,306	—	—	—	—	—	—	—	
Newburyport . .	14,478	13	3	15.40	23.10	—	—	—	
Woburn . . .	14,300	5	—	—	40.00	—	—	—	
Hyde Park . . .	14,175	9	3	22.22	33.33	—	—	11.11	
Adams . . .	13,745	—	—	—	—	—	—	—	
Attleboro . . .	13,677	—	—	—	—	—	—	—	
Marlboro . . .	13,609	3	2	33.33	66.67	—	—	—	
Melrose . . .	13,600	1	—	—	100.00	—	—	—	
Westfield . . .	13,418	6	—	—	16.67	—	—	—	
Milford . . .	13,129	—	—	—	—	—	—	—	
Revere . . .	12,722	4	2	25.00	25.00	—	—	—	
Framingham . . .	12,584	4	1	25.00	50.00	—	—	—	
Peabody . . .	12,179	—	—	—	—	—	—	—	
Gardner . . .	11,923	—	—	—	—	—	—	—	
Weymouth . . .	11,344	8	0	—	62.50	—	—	—	
Southbridge . . .	11,268	6	8	—	33.33	—	—	—	
Watertown . . .	11,077	2	—	—	—	—	—	—	
Plymouth . . .	10,730	—	—	—	—	—	—	—	

Deaths reported, 4,119; under five years of age, 1,222; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 831, acute lung diseases 900, consumption 429, scarlet fever 42, whooping cough 56, cerebrospinal meningitis 10, smallpox 10, erysipelas 4, measles 32, typhoid fever 62, diarrheal diseases 94, diphtheria and croup 84.

From whooping cough, New York 12, Chicago 12, Philadelphia 7, Pittsburg 13, Providence 5, Boston 2, Lowell 2, Somerville, Fitchburg and Waltham 1 each. From erysipelas, Chicago 3, Pittsburg 1. From smallpox, Chicago 3, Philadelphia 1, Pittsburg 6.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,011, for the week ending Feb. 14, the death-rate was 17.1. Deaths reported, 4,948; acute diseases of the respiratory organs (London) 267, whooping cough 131, diphtheria 70, measles 91, smallpox 9, scarlet fever 59.

The death-rate ranged from 5.7 in Kings Norton to 28.8 in Tynemouth; London 17.0, West Ham 15.4, Brighton 16.6, Portsmouth 16.3, Southampton 20.8, Plymouth 16.8, Bristol 18.9, Birmingham 17.9, Leicester 13.5, Nottingham 17.8, Bolton 18.0, Manchester 23.1, Salford 19.1, Bradford 16.0, Leeds 17.0, Hull 19.2, New-Castle-on-Tyne 21.4, Cardiff 14.5, Rhondda 18.3, Liverpool 19.6, Bournemouth 9.1, Hanley 26.4.

METEOROLOGICAL RECORD.

For the week ending Feb. 28, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S. M.	22 30.23	28 30.23	34 31.43	21 19.68	75 64	64 54	70 58	W S	W S	14 9	12 5	C. C.	C. C.	O. O.
T. T.	24 30.18	31 30.18	34 39.30	24 30.18	68 78	78 73	73 73	S W	S W	9 8	12 5	C. C.	C. C.	O. O.
W. W.	25 30.24	30 30.24	30 37.24	24 30.24	63 55	55 59	59 42	W W	W W	8 8	12 16	C. C.	C. C.	O. O.
F. F.	26 30.34	36 30.34	36 46	28 45	45 39	39 42	42 84	W S	S W	8 7	15 29	C. C.	C. C.	O. O.
S. S.	27 30.28	47 30.28	57 47	37 43	74 92	55 77	84 77	W S	W W	24 7	29 29	C. C.	O. F.	O. O.
Mean	30.16	45	29	66										.30

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † indicates trace of rainfall. — Mean for week.

RECENT DEATHS.

DR. ALBERTUS L. VANDEWATER, one of the medical examiners of the New York Life Insurance Company, died on March 2, at the age of fifty-three. He was born in New York City and was graduated from Bellevue Hospital Medical College in 1870.

FRANK FONTELLE BRIGHAM, M.D., M.M.S.S., died in Lynn, March 10, 1903, aged thirty-nine years.

Dr. Brigham was born in Westboro, Mass., in 1863, was graduated from Brown University in 1882 and from the Harvard Medical School in 1885, and served thereafter in the Lynn Hospital and had lived there, actively practicing his profession up to the time of his death. From 1888 to 1891 he was a member of the Board of Health and held various other positions of trust and responsibility. He was particularly interested in compulsory vaccination, undertaken recently by the Board of Health, and it is thought that his activity in this work hastened his death from disease of the heart consequent on rheumatism.

SOCIETY NOTICE.

RECEPTION TO DR. WILLIAM OSLER.—The Medical Club of Philadelphia holds a reception in honor of Dr. William Osler of Baltimore, at the Hotel Bellevue on Friday evening, March 27.

APPOINTMENTS.

DR. E. H. BRADFORD has been appointed visiting orthopedic surgeon to the Long Island Hospital, Boston Harbor.

DR. H. A. GATES of Delhi, N. Y.; Dr. Grant C. Madill of Ogdensburg, N. Y., and Dr. Frank Walker Sears of Birmingham, N. Y., have been appointed as consulting surgeons to the New York State Hospital for the care of crippled and deformed children at Tarrytown, N. Y.

RESIGNATIONS.

DR. J. E. GOLDTHWAIT has resigned from the Children's Hospital, Boston.

DR. GEORGE L. PEABODY has resigned his position as professor of materia medica and therapeutics in the Medical Department of Columbia University, after a service of seventeen years.

BOOKS AND PAMPHLETS RECEIVED.

Safeguarding the Insane. By William Church Osborn, Ex-Commissioner in Lunacy.

Atlas and Epitome of Diseases of the Mouth, Pharynx and Nose. By Dr. L. Grünwald. Second edition, revised and enlarged. Authorized translation from the German. Edited, with additions, by James E. Newcomb, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1903.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. I, March, 1903. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

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AN ACCOUNT OF DR. THADDEUS MACCARTY.

A NEW ENGLAND COUNTRY DOCTOR OF PRE-REVOLUTIONARY DAYS.¹

EDITED BY BURNSIDE FOSTER, M.D., ST. PAUL, MINN.

DR. THADDEUS MACCARTY, the oldest surviving son of the Rev. Thaddeus Maccarty, was born in Worcester, Mass., Dec. 19, 1747 (old style). As his father was a country parson with a growing family and small salary, it was wholly out of his power to educate any of his children at a university by any means of his own, but he had an uncle Greenough, the brother of his mother, resident at New Haven, who was in quite affluent circumstances for those times. This uncle generously offered Mr. Maccarty that if he would fit one of his sons for college he might be sent to New Haven, board with him, and that he would defray all the expenses of his education. Mr. Maccarty accordingly hesitated not to accept this kind offer, and his son Thaddeus was put to his Latin. No less a man than John Adams, who kept a school in Worcester some portion of the time he was reading law in the office of Colonel Putnam, was one of his first instructors. But according to the doctor's account given long afterwards, this truly great man was not one of the best of school-masters. He used to sit at his desk, the doctor said, nearly all his time, engaged in writing something which the doctor then supposed to be sermons, but as Mr. Adams was engaged in the study of the law and not the gospel, this was probably a mistake. He seemed when not actually writing absorbed in profound thought and abstracted from everything about him, and he kept his school along by setting one scholar to teach another; this is the doctor's account given forty years afterwards. How far the doctor's preparation to enter college was made at this school or any other school within the town I was never informed, but it was finished in the family of a certain Mr. Hutchinson, a minister of some one of the neighboring towns. Being thus prepared, he proceeded to New Haven and entered the Freshman class of 1762, and after a residence of four years took his degree of A.B., and returned to his father's house with the reputation of being one of the best classical and mathematical scholars of his class. The following winter he taught a school either in the town of Ward or that part of Worcester adjoining Ward. In the spring of 1767, having chosen the science of medicine for a profession for life, he proceeded to the town of Rutland in this county and entered himself a student of medicine and surgery under the auspices of the late Dr. John Frinke, then one of the most eminent physicians in this portion of the country. He had for a companion and fellow-student Dr. Cutler, afterwards a physician of some note in the town of Rockingham and State of Vermont. How long he continued at Rutland with Dr. Frinke I do not exactly know, but I suppose about three years. The Massachusetts Medical Society at this time was not formed; there were therefore no officers to examine and license a

young physician as in our days. Upon the completion of his studies, however, Dr. Frinke gave him a certificate recommending him in very high terms as fully qualified to commence the practice of physic and surgery. The first field of the doctor's labors in his new profession was in the town of Dudley in this county.

On the 25th of July, 1770, he entered into partnership with Dr. Ebenezer Lillie, a physician already in full practice in that town and vicinity. Here the doctor labored three full years, having as much as he could possibly do both night and day; this was a very fortunate chapter in the doctor's life, for besides the opportunity it afforded of making some money, of which he at that time stood in great need, what is of vastly more consequence, it gave him at once, by his union with an established physician in full practice, an opportunity to thus fit himself for the field of his future labors. At the expiration of the three years he closed his connection with Dr. Lillie and soon afterwards repaired to Fitchburg, and took up his residence there, as he then thought and intended, for life. Here was a field as large and extended as any young man, however ardent and ambitious, could wish to enter. The doctor found himself immediately in full and very laborious practice; there was no physician at that time, himself excepted, in Fitchburg and five other towns adjacent. Doctor Shattuck of Templeton, the father of the distinguished gentleman of that name, now in Boston,² was the nearest of any note, and he was laboring in a field as large. It is scarce possible at this day of improvement in all things to form any adequate idea of the labors of these men. There were no roads anywhere fit to be so named. The doctor kept four or five horses, and, having constant calls, kept both himself and them in perpetual motion. I have often heard him in after life relate the toils and adventures of this period, and how many narrow escapes he had of broken neck and limb. In one instance, he said, when his horse was in full trot on a winding road through the woods, and in a very dark night, he ran his head full butt against a tree; this sudden interruption of rapid motion effectually separated man and horse, and prostrated both upon the ground rather more suddenly than either thought desirable. When hearing the doctor relate these toils and dangers of his early life, I little thought that forty years afterwards I should be taxing a worn-out memory to call them into being again.

In the month of January, 1775, the doctor was united in marriage to Miss Experience Cowdin, oldest daughter of Thomas Cowdin, Esq., of Fitchburg. This proved a very fortunate and happy event in the doctor's life. She was a woman of good understanding and of a kind and amiable disposition, possessing all the virtues to adorn and render happy that very important relation in human life, the married state. This choice was highly approved by all the doctor's numerous friends and relations, who always held her in the highest esteem, until by an early death she was removed from this to a happier world, lamented and held in affectionate remembrance by all who knew her.

In the spring of this year the smallpox was making fearful ravages, not only in the army, but in

¹ This account was written in 1886 by Dr. Maccarty's son-in-law, John W. Stiles of Worcester, Mass., and is here published for the first time by Dr. Maccarty's great-great grandson.

² 1886.

all parts of the country. Everybody was exposed, and the doctor, who had not had it, among the rest. Something must be done; although with much difficulty, the doctor finally concluded to leave his family and business at once, go to some hospital and have it. At this time there was a hospital of high repute in Great Barrington, and another in Claverdale in the State of New York, both under the superintendence of a certain Dr. Latham, who managed that terrible disease with great success according to the Suttonian method, then a profound secret, and, for aught I know, is to this day, except to those who purchase the important secret. The doctor lost no time in repairing to Great Barrington, was inoculated and came off victorious, having the disease very lightly. As this was an important affair to the doctor afterwards, perhaps it may not be amiss to say a few words about it, which can best be done in Latham's own language as follows:

"Whereas, William Sutton of Kensington Lane, in the County of Surrey, in England, hath found out and discovered a method or art of inoculation for the smallpox, and hath also discovered and prepared certain medicines, preparatory and effectual in the cure of that distemper, and, whereas the said William Sutton, in order to extend the benefit of this method to America, did, upon certain conditions, take James Latham into partnership for the carrying on and practising of this said method, art or mystery, and inoculation with the medicines aforesaid in certain districts in America, with power to depute under him other persons within said districts under certain terms and conditions," etc.

This James Latham was surgeon to his majesty's Eighth Regiment of Foot, or had been, for so he styles himself, and then resided at Livingston Manor, New York.

Dr. Maccarty got through the disease himself, entered into partnership and Articles of Agreement with Dr. Latham, dated July 24, 1776, for the purpose of establishing a hospital in Fitchburg, and he was thereby duly appointed Dr. Latham's deputy within that town for the term of twenty-one years, promising and engaging, however, not to practise said art in any other place whatever, beyond the limits of said town, without a license first had been obtained in writing from said Latham. Dr. Latham was to have one half of all moneys received in the work of the business until his portion should amount to three hundred pounds, after which he was to receive one third. Latham was to furnish the medicines from time to time, ready prepared, but was not to be obliged to disclose or discover to Dr. Maccarty the method, art or mystery of preparing and making up the said medicines or the contents or composition thereof; and Dr. Maccarty on his part solemnly promised and engaged "to render an account every three months of all persons inoculated by him, not to dispose of, or sell any of the medicines or use any other than such as he would receive of said Latham except in case of necessity, and especially not to analyze or otherwise try to discover the composition of the said medicines or permit it to be done by others." In addition to these articles of agreement Dr. Maccarty received from Latham an extension of his powers and a letter, of which the following is a copy:

GREAT BARRINGTON, 24th July, 1776.

Sir, — During the absence of Dr. Paine, you may inoculate and attend the natural smallpox in any part of

the county of Worcester until his return, and as also inoculate and attend the natural smallpox in Middlesex County until such time as I appoint partners there, or that you hear from me contradicting this license and to take what sum you can get from each. I am your most humble servant,
JAS. LATHAM.

It seems from this document that the late Dr. William Paine of Worcester had already been appointed by Latham to treat the natural smallpox in this county, according to the Suttonian method, if not to inoculate, and that being absent, Dr. Maccarty received this additional authority.³

This business being concluded, the doctor lost no time in returning to his family. On his arrival at Fitchburg, an incident occurred, which, without the greatest prudence on his part, might have blasted his hopes and ruined his business if not himself forever. It seems at this period the doctor was strongly suspected by the good people of Fitchburg of Toryism, and the "Committee of Safety" had just had a meeting, and agreed to arrest Dr. Maccarty as soon as he should return, then hourly expected, and subject him to a severe examination, and if not fully satisfied to forthwith, according to the statutes of Judge Lynch, adorn him with a robe of tar and feathers. Fortunately for the doctor a fast friend of his was in the secret, and was on the watch for the doctor's return. He arrived in the evening about the last of July and was immediately informed by his friend of the whole affair and the discipline prepared for him, and that he might expect to be arrested as soon as his arrival should be known. However, the doctor rested in peace that night. The next morning early, the doctor observed Deacon Ebenezer Goodridge, one of the Committee of Safety, riding by, and immediately went out and addressed him thus: "Deacon Goodridge, I got home last evening and have understood that the Committee of Safety have some business and wish to see me. If you will tell me where they meet I will do myself the pleasure of calling on them immediately." This open and fearless frankness disarmed the good deacon of all his patriotic wrath, who soon afterwards made a favorable report to his brethren, saying: "The doctor, he believed, was a pretty good man and meant well, that he was a good doctor and they could not do without him, and that he thought they had better admonish him and let him go." So when the doctor met the committee, this favorable speech of Deacon Goodridge, together with his own prudent management, removed their suspicions in a great degree, so that after a little Whig lecturing the doctor was permitted to depart in peace and escape the tar and feathers.

The doctor returned to his regular business, and in pursuance of his contract with Latham made application to the General Court of Sessions of the Peace, agreeably to an act of the General Court then lately passed, and at a special session held at Worcester on the 15th of August, 1776, was duly authorized "to erect a smallpox hospital in the town of Fitchburg, subject to the orders and regulations of said court." On the 1st of October following the doctor entered into partnership with Dr. Israel Atherton of Lancaster, and in conjunction

³ The original documents relating to the business relations between Latham and Dr. Maccarty were presented by me to the Boston Medical Library, where they now are. — B. F.

with him proceeded immediately to carry into effect his contract with Latham. A hospital was erected, and all necessary preparations being made, it was soon filled with subjects for inoculation. How long it continued in operation, I am not informed, but long enough, as I have heard the doctor say, to carry through eight hundred persons with the loss of only five by death. This it would seem was good evidence of the goodness and efficacy of Dr. Sutton's system.

After the termination of the smallpox concern with Dr. Atherton, Dr. Maccarty continued his regular practice in Fitchburg and the neighboring towns without any particular event worthy of notice until the year 1780, when his father's health being in a declining state he made very frequent visits to him in Worcester. Indeed, his father could not feel satisfied without seeing him twice a week. This took up so much of the doctor's time that it began sensibly to injure his business. People were continually after him, and he was gone to Worcester. Sickness cannot wait, another physician must be had. Dr. Locke, a young physician, had come into town. Dr. Haskell had settled in Lunenburg, was rising in reputation and afterwards was very distinguished. Dr. Whiton had taken his stand in Winchendon, and was highly approved. These all occupied the ground of Dr. Maccarty's former labors, and if Dr. Maccarty could not be had, because absent in Worcester, some one of these others could. Thus his practice fell away. In this state of things, his father advised, nay, urged him, to close his concern in Fitchburg and move to Worcester as soon as possible and commence practice in this town. In an evil hour for him he accepted this advice, and in the month of June, 1781, returned to his native place, and although he did, a portion of the time he remained here, a tolerably fair business, it never was anything compared to what he had left at Fitchburg. In a few years he buried both his parents, his mother dying Dec. 28, 1783, and his father, worn out by a long sickness, July 20, 1784. The doctor until this time had lived about a mile out of the street, which was a great inconvenience, and indeed an injury to his business, and on the death of his father he moved into his house on the south side of the common. After his removal the doctor's business rather improved for a season. On the 1st of June, 1785, he was elected a fellow of the Massachusetts Medical Society. Nothing from this time worthy of note occurred that I know of, except the formation of the Second Religious Society in Worcester, in which the doctor was heart and hand engaged; he was a great admirer and fast friend of Dr. Bancroft, nor did he lose his attachment and respect for that gentleman years afterwards, when the inhabitant of another State. I have often heard him mention Dr. Bancroft as the only minister in this vicinity who preached the gospel according to his understanding. This was forty years ago, when I had never seen Dr. Bancroft, and never expected to.

In January, 1789, the doctor was unfortunate enough to lose his excellent wife, the greatest of all possible losses to him; her health had been declining for some time, and on the 24th of this month she took her departure from this scene of trouble and suffering with perfect resignation to the

will of Him who disposes all events, and regretted by all who knew her.

At this time also the doctor's own health was in a feeble and uncertain state; he was ill able to attend to any business, nor was he free from pecuniary embarrassments. His two brothers, Nathaniel and William, were engaged in trade at Petersham and they advised the doctor to give up his profession at once, as ill suited to his poor state of health, or any chance of recovery, and to go into trade, and they recommended Keene in the State of New Hampshire as a suitable place for that purpose. This advice prevailed, and in June, 1789, the doctor once more broke up his whole establishment and translated himself to Keene and took his stand behind the counter, a place for which he was poorly qualified and where he always disliked to be. The doctor at this time had three children, a daughter and two sons. Upon breaking up at Worcester, these were distributed among his connections. The daughter went to Fitchburg, and resided with her mother's connections; his two brothers adopted the two sons, who had been named for them. William Maccarty this spring removed from Petersham to Boston and took the doctor's oldest son William with him, and Nathaniel Maccarty took the youngest son to Petersham, a little boy of about three years; thus they appear to be happily disposed of. But the doctor was doomed to farther trials; his little son in Petersham died in about a year very suddenly of the croup, and before the doctor could possibly arrive there, and his brother William after a long and tedious illness died at Billerica in the summer of 1791. The doctor's eldest son thus lost his home and followed his father to Keene.

In Keene the doctor continued his mercantile business, practising physic occasionally, which, however, gradually increased as he became more known; he was often called in to advise the attending physician and not infrequently at a considerable distance in many of the neighboring towns. The winter of 1791 he spent in Boston attending his brother William in his last sickness. Here he became acquainted with the late Dr. Jeffries, who had attended his brother. This acquaintance led to a correspondence which was continued long afterwards upon the various subjects connected with medical science. In the spring of 1793 the doctor was again called upon to try the efficacy of his old friend, Dr. Sutton's secret medicines. The smallpox had broken out the year before, and was in all parts of the country. Dr. Hastings had established a hospital in Charlestown, N. H., and not being acquainted with the disease called upon Dr. Maccarty to assist him. The doctor repaired to Charlestown and stayed some time, long enough to assist in carrying through a large class without the loss of a patient. Some years afterwards he had a similar application in Keene with a like success; none died, except two or three who took the disease the natural way.

In the year 1796, if I mistake not, the doctor was called to a new, and until then unheard of, mode of curing diseases; it was sufficiently secret for Dr. Sutton himself and for a while as efficacious. I mean nothing more or less than the celebrated tractors of Dr. Elisha Perkins. He called on Dr. Maccarty to obtain his aid in introducing them into that part of

the county, to induce him, if possible, to make use of them professionally, and accept of a general agency in the sale of those marvelous things. I happened to be present when Dr. Perkins arrived, heard him state the object of his visit, saw the little magic pointers opened, heard him explain their use and mode of application, the wonders they had done, the greater wonders they would do, the principle on which they acted, in which he took care, however, to conceal it, and I never shall forget the concluding remarks of all this great learning. He expected opposition, he said, from ignorance, bigotry and prejudice, but the time would come when it would be acknowledged by all that the tractors were the greatest discovery of modern times, and raised us one step nearer to Him who knoweth all things; these may not be his exact words, but they are substantially. I stood with amazement and verily thought that if all Dr. Perkins said was true, the gods had come down to us in the likeness of men, as the good people of Lystra did on a more important occasion. Dr. Perkins had all the appearance of having full confidence in the complete efficacy of the tractors. Dr. Maccarty was apparently as much amazed as I was, they were entirely new to him and indeed he knew not what to say, and therefore said but little. I went to my business and left the doctors together, and when I came home at night Dr. Maccarty informed me that he had accepted the agency and had twenty or thirty sets of tractors left for sale at \$20.00 per set, he to return \$16.00 for all he should sell, and Dr. Perkins had made Dr. Maccarty a present of one set. A pompous advertisement was prepared, I believe, beforehand, setting forth their wonderful power, and it was not long before the tractors rose into marvelous reputation. Dr. Maccarty had abundance of employment, some came and purchased them, particularly all the doctors in the vicinity. Some came for the doctor to go and use them. Great cures were wrought; the very chiefest apostle of animal magnetism could not do more. All the good women, old and young, whose nerves were a little disturbed, came and were healed, or fancied themselves so, which was just as well. Many a time when Dr. Maccarty returned from using them, and related what he had done and seen, he appeared evidently to have worked himself into faith, and this delusion continued, if I remember right, as much as two years, without much abatement. The doctor sold all his tractors, and afterwards received fifty sets more; how many of these he sold I never knew, as not long afterwards I left his employment. From a letter from Dr. Perkins to Dr. Maccarty now lying before me, dated Plainfield, Dec. 14, 1797, I make the following extract: "We have continually increasing testimonies, and from respectable quarters of the efficacy of the tractors. Their general efficacy is now established to the confusion of the envious, the ignorant and the bigoted, who always have and ever will oppose useful discoveries and improvements." But in about two years from their introduction into Keene, the tractors began to lose ground, and in the course of another year sank with remediless disgrace. Christopher Caustic, however, has saved them from oblivion.⁴

⁴Terrible Tractation, a Poetical Petition against Galvanizing Trumpery and the Perkinistic Institution, by Christopher Caustic, M.D., LL.D., Ass., London, 1808.

In February, 1799, Dr. Maccarty was appointed a justice of the peace for the county of Cheshire, and in February, 1802, a justice of the Quorum. This circumstance is perhaps hardly worth mentioning, such offices are now so common and so cheap, but it was an important thing to the doctor, as he did a great deal of profitable business in that capacity. He was also one of the Board of Selectmen, and chairman of that body some years.

The doctor had been preparing his only son William for a collegiate education for some years, and in 1796 he repaired to Hanover with him at the general commencement, and his son was entered in the Freshman class, but being so young it was not the doctor's purpose to keep him there under another year. But, alas, how vain are all human calculations built on future and uncertain events! The doctor was doomed once more to disappointment in all that lay nearest his heart; this son, this only son, this only male child surviving of the whole race, was soon to be gone. He sickened in the fall, grew weaker and weaker, but without pain, and expired on the 4th of February, 1797, of a diabetes, in the fourteenth year of his age. This event affected the doctor more than all others since I had known him.

Perhaps before I close this imperfect sketch I ought to say something of the doctor's theological and religious sentiments. But this is the most difficult part of the whole. I heard him converse for four years on religious subjects more than on all other subjects put together, and yet it was as difficult to ascertain what he really believed as to find out the longitude of perpetual motion. I have already mentioned what he said of Dr. Bancroft, but when that is compared with what I have heard him say on many other occasions it would seem to be the man he loved quite as much as any particular system of doctrines. I don't know but I do wrong to say anything about it. I know his friends and particularly Mr. West, his brother-in-law, considered him a deist. But the doctor never acknowledged himself one to my knowledge. He mentioned, however, several times that in his younger days he had been much conversant with deistical writers, which gave his good father much uneasiness. He used to mention Hobbes, Spinoza, Dr. Tindall and Annat as authors he had read. But he had no such books in his own library, and I never saw a deistical book in his house or knew him to read one all the time I lived with him, nor did I ever hear him defend such sentiments. The doctor was very familiar with the scriptures, and very fond of controversy.

He knew all the clergymen in the vicinity and they often called upon him, and rarely separated without a dispute, but they were always conducted with good temper, and I never saw any feverish excitement on either side. But the doctor could argue on all sides and with equal force, and he did this so often that I rarely felt sure that he was really of the opinion which he defended. But in all his discussions it was always taken for granted that the scriptures were true in some sense. The doctor read Greek and Latin with the greatest facility, and his knowledge of Greek was always one chief dependence in his disputes with the ministry; very few in that neighborhood knew much Greek, from long disuse it had faded from the mind. When, therefore, a text

was produced which the doctor could not evade in any other way, he would contend for a different translation, quote the Greek and render for himself. This was often decisive, for it would silence if not convince. There was one clergyman in the vicinity whom the doctor highly respected and who was really an able man, the Rev. Mr. Goddard of Swansea, and they rarely parted without an oral combat. I will just briefly refer to one of these, and with it finish this subject. The question was the eternity of future punishment. Mr. Goddard was, of course, for the affirmative, and the doctor took the other side. Mr. Goddard quoted many texts which he supposed supported his position, two of which I will mention, Matthew, chap. 26, v. 24: "It had been good for that man if he had not been born," that is, Judas. Mr. Goddard contended that if after ever so long and severe a punishment happiness were then to commence, as it would continue forever, it could not be true, that in such case it be better for Judas not to have been born, for he considered existence so great a blessing that no rational man would refuse it, though subject to ages of suffering, if eternal happiness was to follow. The doctor fully admitted this consequence, but he contended that the verse was improperly rendered and the sense perverted or destroyed by reversing the order of the words in the Greek text, in the translation, and that it should be rendered thus: "It had been good for him if that man had not been born," and that as "the son of man" was the last antecedent before "him," it evidently referred to "him," and then the sense would be, "It would have been good for the son of man if Judas had not been born," for then he would not have betrayed him, etc.; and this construction the doctor said was supported by the prayer "that if it were possible that cup might pass away from him," etc. Mr. Goddard also quoted Acts, chap. 1, v. 25: "That he may take part of this ministry and apostleship from which Judas by transgression fell that he might go to his own place." Here the doctor was ready with a new translation, the last clause of the verse, he said, was evidently erroneous and that the true meaning of the Greek was utterly destroyed. The real meaning of it was, he said, not that Judas should go to his own place, but that the new apostle should take Judas' place in the ministry, that is, "go into his place," and this correction I really think the doctor was serious in, whatever he was in the other, for I heard him mention it on several other occasions.

In the month of June, 1802, the doctor came to Templeton to visit my family, and likewise visited his brother at Petersham, but he said to me on the morning of his departure, "I am going to die." A few weeks afterwards I visited him at Keene. I found him reading the Septuagint version of the scriptures; he told me he had been engaged in it a whole year, and had been critically comparing it with the English version. He made many observations upon the various readings, and the difference in the sense of many passages in the two versions, as compared with each other. One of these may be mentioned, as it is often quoted and relied on for the establishment of a particular doctrine, had no corresponding words in the Septuagint, but were entirely wanting. The doctor said more upon the subject of religion, *seriatim*, and upon its general

importance, than I had ever heard from his lips before, and he finally concluded by saying he "was sorry he had disputed so much about it."

I visited the doctor again in September and found he had greatly altered; that hereditary disease which has afflicted all his family in some form, and which some of them have called the gout and some have not known what to call it, had fixed itself upon his lungs, and was fast wasting him away. Still he was able to do business, and as the settlement of his concerns would, he knew, eventually devolve on me, he gave a minute explanation of everything which he thought would be otherwise unintelligible to me, pointed out how he would have them adjusted and especially in some settlements where small mistakes had been made and several sums were due from him to others which no mortal but he could ever know. He pointed them all out and gave me strict injunctions that they should all be carefully rectified. From this time his health rapidly declined, and the last few weeks he was confined to his bed. He continued wasting, but without much pain, until Saturday night the 21st of November, 1802, when he closed the,—

"Last scene of all,
That ends this strange, eventful history."

The doctor left but one child, a daughter, who was married in November, 1801. She has two children only, one of them was married in 1828 and has three. Thus, although the Rev. Thaddeus Maccarty had a very large family, even fifteen children, there now survive of all his posterity only one grandchild, two great-grandchildren and three great-great-grandchildren.

"Like leaves on trees the race of man is found
Now green in youth, now withering on the ground;
Another race the following spring supplies,
They fall successive and successive rise;
So generations in their course decay;
So flourish these when those are passed away."

LIPOMA ARBORESCENS.

BY CHARLES F. PAINTER, M.D., AND WILLIAM G. ERVING, M.D.,
OF BOSTON.

From the Orthopedic Clinic of the Carney Hospital.

THE occurrence of fatty growths in the joints is not very uncommon, though comparatively few have attracted enough attention to merit publication. They have usually been associated with the existence of tuberculosis or arthritis deformans. They occur as overgrowths of the synovial villi of the joint or as true lipomata¹ that have pushed in from the subserous fat as the result of laceration of the fibrous capsule.

As more cases are being studied, it becomes evident that the etiology is not as limited as was at first supposed. Many conditions may cause the hypertrophy of fringes. Under some circumstances the result is a general villous enlargement, and under others it is confined to one or at most a very few villi. The knee joint is the one most commonly affected, though others are not exempt. In this series the cases are all operative, and have come under observation during the past year.

The seven cases here to be reported in detail are

¹ Stieda (Beitrag. f. Klin. Chir., xvi, p. 1896) reports twelve cases of true lipoma in the joints.

selected from a series of sixteen cases of hypertrophied synovial villi, recently removed at operation, because they seemed to represent distinct tumor formations, and not simply the arborescent overgrowths of the synovial membrane, which are so commonly seen. Doubtless this condition of apparent tumor formation is nothing more than the end result of the villous hypertrophy, but clinically this condition is much the more important to recognize, for the removal of the growth not only rids the affected joint of the cause of its symptoms, but removes from it a source of internal trauma, which would permanently impair the function of the joint if allowed to remain. It is of great importance, then, to recognize these growths in the joints, and in view of the failure to find tuberculosis as the cause for the hypertrophy in any of the following cases, it seems reasonably certain that isolated villous hypertrophies, without more symptoms of joint disease, will not be found to be due to tuberculous infection, and consequently the radical operations, which the literature shows have been resorted to in certain cases, are not indicated because one finds villous hypertrophy on opening the joint. The clinical symptoms given are those of a foreign body in the joint, and not of disease of the bones or soft parts.

CASE I. M. C., a woman aged twenty-one years. Had always been well until July, 1901, when she first had pain referred to the left knee, accompanied by swelling, but no redness; unable to work. Entered the Boston City Hospital in July, and was treated with a splint for two weeks without effect. In August again entered hospital, and remained six weeks without relief. In January visited the Carney Out-Patient Clinic, at which time the left knee was held flexed about 10°; complete extension was not permitted; attempts at this caused much pain. Over the outer side of the joint at the level of the outer border of the patella was a very tender spot, the size of a ten-cent piece. Motion allowed in flexion without spasm. A quarter to one-half inch atrophy of the thigh and calf; no enlargement of the knee joint itself; no thickening of the capsule. A positive diagnosis could not be made; x-ray taken.

Operation, March 17, 1902. An incision 10 cm. long was made on the outer side of the joint, exposing the capsule, which was not thickened. On opening the joint a fatty mass was found attached to the fossa above the external condyle, from which it extended well up into the suprapatellar pouch, attached all about its margin, and fed by vessels from its under surface. The blood supply was quite good. When this growth was removed it was as large as the palm of an adult hand. March 24th stitches were removed, joint manipulated; no adhesions.

The specimen removed consisted of an irregular mass of fatty tissue, more or less lobulated. This was inclosed in a capsule and interspersed by a meshwork of fibrous tissue, giving to the mass a firmer consistency than is common to ordinary lipomata.

Microscopically the tissue was found to consist of bands of fibrous tissue, usually narrow, irregular and loosely woven together. Throughout this fibrous tissue were numerous blood vessels with thickened walls. Separating these fibrous areas were masses of adipose tissue of varying size, scattered throughout which were many small blood vessels, their lumina almost or quite obliterated, forming small islands in the surrounding fatty tissue. Scattered throughout the specimen were large areas of fibrous tissue, taking up the eosin stain but little and with but few staining nuclei; the fibers in many cases being broken up into small fragments, and in places forming an almost homogeneous mass.

CASE II. L. F., male, aged thirty-five years. Five years ago noticed swelling of the right knee, which was slightly painful and reddened. The knee felt feverish for two or three months. Later began to walk lame;

visited the Hot Springs without relief. Redness subsided and swelling remained. Two years later left knee began to swell, and one year ago the left ankle. Left knee was operated upon at the Massachusetts General Hospital in February, 1900, with relief for two or three weeks, after which symptoms recurred.

Examination.—Left knee slightly swollen, half an inch larger than right; 45° of motion in flexion, and within 5° of complete extension possible. Marked thickening of the capsule of the joint, particularly on either side of the patellar tendon. No spasm on motion; no surface temperature or redness; apparently condition of proliferated synovial fringes.

Operation.—Incision 5 cm. long, on inner side of the joint, exposing the capsule, which was very much thickened and quite vascular. On opening the joint the synovial surface was found to be congested, and the villi were much proliferated. Some cloudy fluid escaped. In it were fibrinous clots. The greatest proliferation of the villi was in the region of the ligamentum alae. An opening was made over the outer side of the joint; several large villi immediately presented in the wound; on the upper and outer side of the capsule of the joint was a fatty growth suspended from the synovial membrane, apparently a degenerated villus. This was the size of an English walnut. The fringes were removed and the lipoma dissected out. Convalescence has been uneventful since the operation was performed. Six months after the operation the function of the joint was practically normal, and the patient had been at his work as a street car conductor for some time.

The specimen consisted of several fringes removed from the synovial membrane close to the patella and on either side of the joint. They varied in length from 1 to 2.5 cm., and in thickness from .5 to 1 cm. Dark purple in color and very vascular. There was also a sessile mass, fatty in character, which was removed from the synovial membrane of the upper and outer portion of the joint. This was some 3 cm. in diameter, and appeared to be a fringe which had undergone fatty degeneration.

Microscopically the specimen was found to consist of adipose tissue interspersed by broad and more or less regularly arranged bands of connective tissue. In both varieties of tissue were numerous vessels, the larger being found for the most part in the latter, the smaller in the former tissue. The larger vessels showed marked thickening of their walls, the smaller were often wholly obliterated.

CASE III. A. S., a woman aged twenty-three years. For the past six months has complained of the left knee "catching" when in certain positions; not enough to throw her and not causing any acute signs of joint trauma, but enough to be of considerable annoyance, and making her feel uncertain in the use of the leg. These symptoms were gradual in their onset, and not connected with any known cause.

Examination.—A well-developed girl; over the outer side of the left knee joint can be felt a distinct fringe which seems fibrous and which the fingers slip over in palpating the joint. Joint motions perfectly free; one-half inch enlargement of the left knee; no atrophy of thigh or calf; no signs of acute disease.

Operation, Feb. 28, 1902. An incision was made over the outer aspect of the joint; no thickening of the capsule; no increase in vascularity. On incising the capsule a large fatty growth presented in the upper part of the joint, apparently growing from the synovial membrane and projecting well down under the upper half of the patella when the joint is flexed; also extending well over to the inner side of the joint. The vessels supplying the nourishment seemed to come from the parietal layer of the synovial membrane. This mass was dissected out and the wound closed with silk worm gut.

March 24, 1902, normal motions in the joint; no symptoms of the old trouble. The functional use is entirely restored.

The specimen consisted of a lobulated irregular mass of fatty tissue, the lobules held together by a meshwork of fibrous bands, giving the tissues a firmer consistency than is usual in lipomata. Markedly vascular.

Microscopically the specimen was found to consist of areas of adipose tissue transversed by bands of connective tissue, for the most part regular in arrangement and stain-

ling deeply, but there were some areas where the arrangement was loose and the staining feeble. The cortical portion contained well-defined areas densely infiltrated with small, round cells, which were entirely absent in the central portion.

CASE IV. Aug. 28, 1902. F. B. For about a year has had trouble with pain and swelling in the right knee. Came on gradually—all the symptoms coming at about the same time but without known cause. Condition has been much worse since a fall on Thanksgiving Day, 1901. Pain at any time independent of use, but is made worse by damp weather. Keeps her from sleeping sometimes. General health good. No trouble in the other joints except that the cervical spine has been annoying her some of late. The joint "catches" at times in a flexed position so that it cannot be straightened.

Examination.—Right knee one inch larger than the left. Joint capsule thickened and relaxed particularly below and on either side of the patella. Sensation of slipping in the joint over the inside of the patella above the line of the joint. Suggests either a fringe or the cartilage, probably the former. In bed at times the joint locks and the cords become tense.

Plaster for two weeks.

Sept. 11, 1902, soreness still persists. Swelling has gone down very much. Circumference over patella 43 cm.—4 cm. less in circumference than at last note.

Sept. 28, 1902. Since last note knee has been quite painful and there has also been some pain in other knee and a sensation of slipping. Right knee as seen today shows no increase of joint fluid. The thickening of the synovial membrane in the lower part of the joint quite apparent, and motion is made very gradually with only 45° of flexion from a straight line possible.

December, 1902. Incision made through the inner side of the right knee. Large fringe removed from ligament over the line of the joint. No other fringes on inner side but a small lipoma, the size of a pullet's egg, removed through a second incision through the outer side of the joint. Upon this was a smaller one attached to the parietal wall. The left knee shows a similar condition. Recovery from operation has been uneventful.

The specimen removed consisted of two separate outgrowths: the first a flat, vascular fibrous tab of tissue, 2 by 5 cm., which was attached to the synovial membrane beneath the patella; the second a fatty lobulated mass, quite vascular, but not dark in color, 6 by 3 cm., which was attached to the synovial membrane by a narrow pedicle. Microscopic examination of the second showed a thin cortical layer of connective tissue, densely infiltrated with small, round cells, with the appearance of granulation tissue. The remainder of the specimen consisted of adipose tissue through which ran strands of fibrous tissue, staining feebly, and usually in the immediate neighborhood of vessels, the amount varying directly with their size. These vessels are very numerous, and endarteritic changes are the rule.

CASE V. A. R. Patient is a nurse thirty-three years old, who has been troubled for one and one-half years with a swelling of the left knee. This has not been constant, but came on at intervals without any apparent cause. The frequency with which it was causing trouble has been increasing. The family and personal history were negative, and there has been no injury to the knee other than hard use at her occupation.

Examination.—The left knee is much swollen, 3 cm. greater in circumference both over the lower border of the patella and above that bone; this swelling being due to an increase of fluid in the joint. Motions not restricted except in the extreme of flexion. No increase of surface temperature; no redness. No interarticular thickening could be felt.

Operation, Jan. 24, 1908. Incision 6 cm. long over inner aspect of joint. Capsule not thickened or abnormally vascular. Membrane not congested or hypertrophied, except in the place to be mentioned. About 6 oz. of clear, straw-colored fluid evacuated.

On lifting the patella up, with the knee flexed about 20°, a good-sized synovial fringe presented, coming from the membrane just in front of the anterior-inferior border of the patella, and dropping down between it and the femoral condyles, and probably between the tibia and femur. The free end of this was quite congested and granu-

lar in appearance, and the whole mass of tissue was perhaps 2.5 cm. in length by from .7 to 1 cm. in width at its base before it was cut off. There was a smaller though a much swollen one over the external condyle of the femur. In consistency the growth felt very soft, as though more fatty than fibrous. Otherwise the joint membrane and the cartilages and bones seemed normal in appearance.

Capsule closed with interrupted silk, and skin with silk-worm gut. Dry dressing and plaster of Paris splint.

Specimen consists of a round mass .3 cm. in diameter, and somewhat flattened. It is gray to reddish in color, and is covered with little projecting tabs of a fatty consistency.

Microscopically the cortex of growth consists of a narrow layer of small, round cells closely packed, inside which is a narrow, irregular layer of connective tissue containing numerous thick-walled vessels. The remainder of the section consists of normal adipose tissue, interspersed by bands of connective tissue of varying widths, while scattered throughout are thick-walled vessels in islands of connective tissue, some of the smaller with obliterated lumina.

CASE VI. E. M., aged twenty-four years. On Oct. 8, 1900, twisted the right knee while playing football. On account of effusion was kept in splint four weeks. Again in November a similar accident, which was slower in recovery.

April 12, 1901, slipped, twisting the same knee; effusion with slight tenderness on fibular side. No history of "catch" in joint. Splint for three weeks and then the elastic bandage. About the middle of May there was perfect motion and no effusion. On May 20, while stepping backwards, felt a sudden, sharp pain in the joint when weight was put on it. Effusion; motion free without pain. On manipulation in flexion felt something slip in the joint; then on standing erect no more pain. On crutches until four days previous to June 24, 1901. Effusion has disappeared very slowly. No "catch" at any time and no pain except on standing at the time of last injury.

Examination.—Right knee slightly swollen and about 40° of motion in flexion is allowed, the limitation being due evidently to the fixation of adhesions. From history condition probably represents bruise of semilunar cartilage without displacement of this at time of last injury. To consider conservative and operative treatment.

Because of repeated attacks of synovitis an operation was decided upon, and the joint was opened on both sides in November, 1901. Over the inner side was found a partially detached internal semilunar cartilage which was removed. Several small fringes were also removed, and through the incision on the outer side of the joint a small fibro-fatty tumor the size of an English walnut was excised. This was sessile and attached to the parietal wall of the joint. Convalescence was uneventful, and now, over one and one-half years from the operation, the function of the joint is normal and there are none of the old symptoms.

Specimen removed consisted of several large congested fringes, many of them 1 cm. in diameter, and a fatty mass 3 cm. in diameter, and the inner end of the internal semilunar cartilage.

Examination of the fringes microscopically showed a fibrous capsule irregularly infiltrated by small round cells which in limited areas are densely packed. Within is adipose tissue, into which at intervals project from the capsule irregular bands of fibrous tissue. Throughout this tissue are scattered many blood vessels, the larger ones with thickened walls, the smaller, which are much more numerous, nearly or quite obliterated.

CASE VII. L. C., female, thirty-four years old. Entered Carney Hospital June 22, 1902. Ten months previously noticed a swelling in lower anterior aspect of knee joint, which gradually increased. There was no locking but a slipping sensation in joint, and at night leg was tired and joint stiff. There was no pain. No treatment until two months before admission, when leg was held fixed in plaster.

Examination showed in the region of the semilunar cartilages of the right knee a firm, fibrous mass which rolled under the fingers. The part which fell between the bones was very gristly in character, the rest of a

softer consistency. No limitation of motion. Left knee normal.

Operation, June 23. Through an incision over inner aspect of joint an irregular sessile mass protruded; the attachment to the synovial membrane was divided; wound closed and leg fixed in plaster.

On discharge July 5, motion of knee was normal and swelling was very slight. In October, 1902, the joint was symptomless and its function normal. The specimen removed consisted of a very vascular mass of grayish-

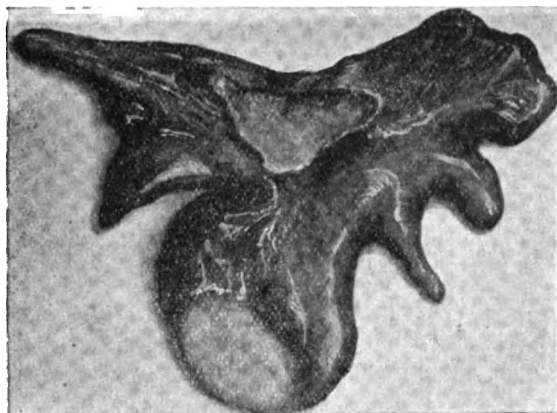


FIG. I.—*Lipoma arborescens*.

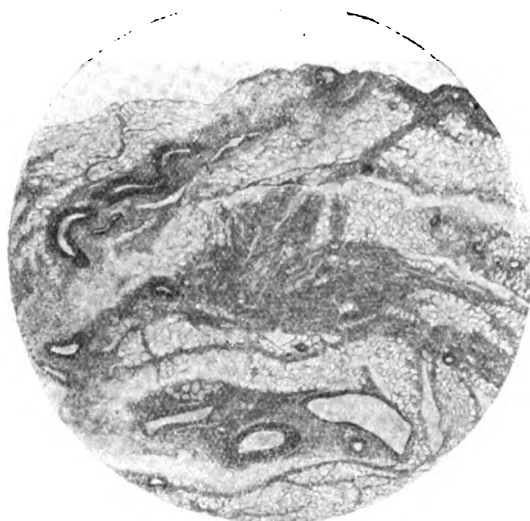


FIG. II (Section of Fig. I).

red to brownish tissue 5 by 8 cm., and about 2 cm. thick. It consisted of several fringelike processes, and was attached to the synovial membrane by a very short pedicle, 1.5 cm. in diameter, and its consistency varied from fatty to tough, the latter being characteristic of that part which came in contact with the bony surfaces of the joint.

SUMMARY OF SPECIMENS.

In general, the clinical picture presented by these cases is that of a more or less swollen joint, without any signs of acute inflammation and most commonly without even any excess of fluid. The patient complains of imperfect function sometimes with and sometimes without pain; more often the latter. They also sometimes complain that the joint "locks"



FIG. III.—A section of a lipomatous tumor occurring elsewhere than in a joint, showing the histological difference from the *lipoma arborescens*.

in a partially flexed position, and can be straightened only after considerable effort.

The lipomata vary greatly in size, reaching often that of a good-sized hen's egg. In shape they vary also from round, regular masses, studded with small tabs of fatlike tissue, to irregular masses, with long fingerlike processes, which are often bulbous at the distal ends. They are attached to the synovial membrane by a pedicle, usually slender, which on cross section is found to consist almost wholly of blood vessels lying in a mass of small round cells. In consistency they vary from a soft, fatty to a tough, fibrous condition, both varieties often found in the same specimen, while the color varies from a yellowish-gray to a dark purplish-red. They are very vascular, and after removal shrink to a great extent. Microscopically the cross section of any of these masses shows a cortex of varying thickness of closely packed round cells, often grouped in round clumps, separated by strands of fibrous tissue infiltrated to a less degree by similar cells. Within this outer layer is one of varying thickness of fibrous tissue, but little infiltrated with small round cells, and containing many blood vessels with thickened walls. The bulk of the mass consists, however, of normal adipose tissue, through which run bands of varying width of fibrous tissue, staining more or less feebly, and often showing signs of granular degeneration. Scattered throughout the adipose tissue are very numerous blood vessels, all with thickened walls, carried in the smaller to the extreme of obliterating their lumina, lying in small islands of fibrous tissue.

The occurrence of this condition has been recognized for some time in the pathological textbooks, but has received very little attention in the surgical textbooks. German authors have described it more often than any others, and have regarded the presence of these joint lipomata as representative of one of two conditions, as a rule, namely, synovial tuberculosis or arthritis deformans. In this way Ziegler (in his *Special Pathology*, p. 2711) refers to these lipomata *arborescentia*, and regards them as the result of a fatty metamorphosis of the normal synovial villi.

Coplin, in his *Manual of Pathology* (pp. 242 and 535), says that he believes lipoma arborescens to be simply a step farther than "cloudy swelling" in the process of fatty degeneration, analogous to the same process in the kidney. He believes it is caused by (1) anemia, (2) necrosis and caseation, (3) bacterial toxins, (4) embolism, (5) infections, etc. According to Coplin these degenerations develop in sub-synovial or subserous tissues, and push their way into the neighboring cavities.

Dalafeld and Prudden, in their *Pathology* (pp. 317 and 779), refer to the lipoma arborescens as pushing into the joints as "tufts" of synovial membrane.

Hektoen-Riesmann in the *American Text Book of Pathology* simply advance the old theory that these growths are signs of some underlying cause, as tuberculosis or osteo-arthritis.

Haeckel reviewed the literature up to 1888, and described two new cases of lipoma arborescens in his own experience. This article was entitled "Lipoma Arborescens," and appeared in the *Centralblatt für Chirurgie*, April 28, 1888; later still, in the *Allg. Chir. für Path. und Therapie* (8 Auflage, p. 706), Billroth has another contribution to this same subject.

Stieda, in a carefully written paper on lipoma arborescens of the knee, appearing in the *Beitrag für klin. Chir.*, xvi, p. 285, 1896, gives an exhaustive review of the literature on the subject up to that date. Including his own two cases, he mentions thirteen, in ten of which the knee was involved, in two the shoulder, and in one the hip.

The first case on record is one described by Gœtz in his *Dissert. inaug. Halle.*, 1798.

The name "lipoma arborescens" was first given to the condition by Joh. Müller in his "*Ueber den feineren Bau und die Formen der krankhaften Geschwülste*," while the first suggestions regarding its etiology were made by Volkmann in the *Centralblatt für Chirurgie* for 1885. He classified lipoma arborescens of the joint, with other chronic enlargements, as a condition not of necessity primarily tuberculous, but developing into it.

König, writing in 1885 and again in 1895, considered the condition as a manifestation of tuberculosis only, but finding later a similar condition in cases of arthritis deformans, he at first tried to distinguish them, and finally admitted the great difficulty in so doing.

Schmolck, in 1886, reported two cases, both of long standing, in which at the time of operation a fresh tuberculous lesion was found, from which he concluded the condition to be one of lipomacie of the joint favoring the invasion of the bacillus of tuberculosis.

Haumann in his *Dissert. inaug.*, at Bonn, in 1887, reported a case in which the condition was associated with a chronic rheumatoid affection. He too thought the structure favored the presence of tuberculosis.

Israel reported a case following trauma, in which no focus of tuberculosis was found.

Riedel in the *Archiv. für klin. Chir.*, vol. xli, 1891, mentioned a case in the knee joint following a healed periarticular tuberculosis. No focus was found at time of operation or in the specimen removed, but there was a subsequent exacerbation of the disease. The same was true in a case involving the shoulder,

which was afterwards involved by a process starting in the humeral head. He considered that the condition developed from mild inflammatory conditions, as tuberculosis and arthritis deformans.

Schüller, writing in the same publication, vol. xlv, 1893, noted the fact that small tuftlike growths from the free surface of the synovial membrane are not pathological but are found even in the newborn. The pathological cases were to be considered not as tumor formations but as simple hypertrophies, the result of chronic inflammation.

Modlinski, writing in the Russian *Medizinskoje Obozrenije*, No. 20, 1891 (as quoted by Stieda), reported a case of lipoma arborescens of both knees, in which a local and general tuberculosis was found.

Sokoloff in the *Chirurg. Itscheskij Westnik*, 1893, 2 and 3, and the same year in Volkmann's *Klinische Vorträge N. F.*, No. 81, September, 1893, reported one case in the knee in which no tuberculous focus was found, one in which such a focus was found, and one in a case of a syringo-myelic arthropathy of the shoulder, with enlarged joint cavity, atrophied humeral head, and luxated bone. From this last case he advanced the theory that a condition of negative pressure in a joint was also an etiological factor in the growth of lipoma arborescens, as favoring the hypertrophy of fatty tissue.

Of Stieda's two cases, the first affected the knee. It was of long standing, with an old history of injury. Aspiration of the fluid in the joint being unavailing, the joint was resected and a complete recovery resulted. The second case was an old museum specimen of a hip involved in a condition of arthritis deformans, showing a marked lipoma arborescens of the joint. Stieda's conclusions are as follows:

(1) Lipoma arborescens occurs in a number of chronic joint affections.

(2) It is not a lipoma in the sense of being a "new growth," but is merely a hypertrophy of normal pre-existing tissue.

(3) Its etiology is a chronic inflammatory condition of the joint, arising usually from tuberculosis or arthritis deformans and possibly a condition of negative pressure in joint.

(4) Pathologically it is an hyperplasia and fatty degeneration of pre-existing synovial tabs, to an extreme degree.

(5) Histologically the appearance is that of a typical chronic inflammatory condition, with, in addition, a specific appearance in case of tuberculosis.

(6) In an unopened joint, diagnosis is not certain, the swelling, tenderness, limitation of motion and ability to palpate not being absolutely diagnostic.

(7) Prognosis of spontaneous healing and recovery of joint function unfavorable.

(8) Treatment: arthrectomy (eration) or when tuberculosis is present, resection of the joint.

With these conclusions our observations would, in the main, agree. Where we should differ from the author above quoted would be in giving tuberculosis relatively a less important place in the etiology, and we should urge the importance of the absence of the clinical evidence of joint disease as leading to the diagnosis of a non-tuberculous condition, and encourage exploration of the joint where any doubt exists as to the nature of the pathological process.

SUPPURATION OF THE FRONTAL, ETHMOID, AND SPHENOID SINUSES.

WITH BRIEF REPORT OF THE TREATMENT OF TWO HUNDRED AND THIRTY-SEVEN CASES.

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Owing to the often severe and distressing symptoms, as well as to their etiological importance in the production of pathological conditions in the ear and throat, the study of the diseases of the accessory sinuses of the nose is one of the most interesting and important with which we have to deal. This subject has received much attention during the last few years, and although many points are still unsettled and under discussion, a great deal has been accomplished, and we are given much information in regard to the etiology, symptoms and treatment of this class of cases. Many cases of persistent and severe ear and throat difficulty are now known to be due to disease of these structures, and many can be greatly relieved by removing or relieving these exciting causes. It is my purpose in this paper to consider the affections of the cavities situated at the superior portion of the nose, namely, the frontal, the ethmoidal and the sphenoidal; and in a general way to report 237 of these cases treated in my office.

As the drainage plays such an important part in the etiology as well as in the treatment of all the sinuses, I deem it advisable to briefly review their anatomy. As a whole, they occupy much of the space between the nasal and naso-pharyngeal cavities below and the cranial cavities above, and although they vary considerably in extent and in the position of their natural openings into the nose, yet these variations have limitations within which we may expect to find the great majority of cases.

The frontal sinus usually develops between the tables of the frontal bone, over and between the eyes, above the root of the nose. There is almost always a thin plate of bone which separates the cavities on either side. This is not always in the median line and it is sometimes perforated. These cavities vary greatly in size, and one or both may be wanting. Although there seems to be much difference of opinion, the general belief is that they begin to develop at about the second year by the upward extension of the ethmoid cells. At about the seventh or eighth year they can be recognized as a distinct cavity above the root of the nose. They gradually increase in size, and at the age of puberty may be quite extensive. It is claimed by some anatomists that they continue to increase into old age. This is of little importance so long as we bear in mind that at all ages they are subject to great variations and may be separated from important structures by only a mere shell of bone. This is also true in dealing with all of this group of cavities. The shape or prominence of the supraciliary ridge is of little aid in determining the shape or size of the cavity behind it, which in some cases extends over the orbital roof as far as the external angular process, and occasionally nearly as far back as the optic foramen. The frontal sinus often communicates with the anterior ethmoidal duct, either directly into the middle fossa anteriorly or after having joined the infundibulum. The ethmoid sin-

atomists, but from a clinical standpoint it is sufficient to divide them into two groups, an anterior, which communicate with and drain into the middle meatus of the nose, and a posterior group, which communicate with and drain into the superior meatus above the middle turbinate. The lateral mass of the ethmoid bone forms by its outer surface the greater portion of the inner wall of the orbit and by its inner surface the upper outer wall of the nasal cavity. The body of this mass is made up of thin trabeculae of bone bounding variously shaped and sized cavities, the whole structure resembling that of a sponge. There is no regularity in the number or size of these cells, and there is no relation in the amount of space occupied by the two groups. The anterior group may have several openings into the middle meatus, and may also communicate with the posterior group. They are closely associated with the floor of the frontal sinus and the naso-frontal duct. At times one of the cells develops upwards and forwards and forms a prominence upon the floor. This has been called the bulla frontalis. Occasionally some cells extend into the roof of the orbit, below the frontal sinus, and may extend as far back as the optic foramen. At the anterior part of the lower border of the lateral mass of the ethmoid is a prominence containing one or more cells called the bulla ethmoidalis. At times there are cells in the anterior portion of the middle turbinate which may be so large as to block the whole superior portion of the nasal cavity.

The posterior group of ethmoid cells may extend below, encroaching upon the maxillary sinus, and occasionally the sphenoid body contains an ethmoid cell of considerable size. At times they occupy the greater portion of the lateral mass of the ethmoid and again only a small posterior portion. The general relation and great variation of the ethmoid cells makes it evident that any suppurative process may cause pressure and produce symptoms pointing to the frontal maxillary and sphenoidal regions.

The sphenoid sinuses, like the other sinuses, vary in quite a marked degree. They occupy simply the anterior part of the body of the sphenoid bone or they may extend even into the baso-occipital behind, into the base of the great wings laterally, and into the lesser wings superiorly. The larger the cavities, the thinner must be the bounding walls. As these walls are in contact with many important structures which without great care might become injured during operations, I will give here a few of the more important relations. Above the cavity approaches the cranial cavity, and is covered from before backward by the root of the lesser wing, the olivary process and the sella turcica. Upon these rest the olfactory peduncle, the optic commissure, the pituitary body, and when the cavity extends far back the pons varolii. The optic nerve and the ophthalmic artery are situated near where the roof joins the external lateral wall. The roof is at best very thin, and when diseased may even be perforated. The anterior wall which forms the posterior portion of the roof of the nasal chamber is nearly vertical at its upper part and inclines backwards below where it meets the floor. This wall is very thin, and through it the cavity communicates with the sphenoidal fossa of the nose.

The external lateral wall, often very thin, is de-

pressed from the cranial side for the internal carotid artery and the cavernous sinus posteriorly, anteriorly it is the inner boundary of the sphenoidal fissure through which pass the third, fourth, the ophthalmic division of the fifth, and the sixth cranial nerves and the ophthalmic vein. There is a septum of bone, usually complete, which separates the two cavities. This occasionally deviates so that at times there is marked inequality of the two cavities. It sometimes happens that one cavity is nearly behind the other, and I have seen a specimen in which one cavity was posterior to the other, and communicated with the nose only through the anterior cavity.

The lining of all the accessory sinuses is a thin mucoperiosteal membrane, with a layer of ciliated epithelium upon the surface.

The position of the outlets of the various sinuses is of great importance, in both enabling us to make a diagnosis and to treat the disease conditions found.

The infundibulum, which in about half of all cases is joined by the naso-frontal duct, opens into the anterior portion of the middle meatus between the ethmoid bulla and the uncinate process, under cover of the middle turbinate body. Where the naso-frontal duct does not join with, it opens in front of the infundibulum directly into the middle meatus. Under these conditions it is short and straight and more nearly vertical. Neither of these openings can be seen, as they are covered by the middle turbinate. A small probe can usually be passed through these ducts, and often is an aid in diagnosis. It is not rare for one or more of the ethmoid cells to communicate directly with the middle meatus.

The posterior ethmoid cells and the sphenoid cavity open above the middle turbinate, the ethmoid into the superior meatus, and the sphenoid into the sphenoidal recess. They are much more easily explored by the probe than the anterior group. In a large number of cases there are two or even three openings from the posterior ethmoid cells, one opening is often situated in the small groove which frequently lies just above the superior meatus. The sphenoidal sinus communicates through a single small opening at the superior posterior portion of the outer wall of the nasal chamber. This opening varies considerably in size and position. In relation to the sphenoid cavity, it is nearer the roof than the floor, at times immediately below the roof. The olfactory cleft is usually so narrow that the opening cannot be seen. Even when the middle turbinate has been removed the opening may be located so far out or the superior turbinate may project so far that direct inspection is impossible. I have been able to see the opening in several cases where the middle turbinate had undergone atrophy, and in a few cases where it was near the septum, and where there was an unusually large olfactory cleft.

After this slight anatomical review, it is easy to understand how so many and often times extensive cavities may become infected by various bacteria, and when the resulting inflammations are set up how liable the inflammatory products are to infect the other cavities and to cause pressure when the openings become blocked by swelling of the mucous membrane lining them.

Anything which lowers the general vitality, as

overwork, excess in eating and drinking, lack of fresh air and exercise, exposure to cold, chronic diseases, like diabetes, nephritis, syphilis, cardiac and pulmonary disorders, and malaria, may be lowering the resistance of the nasal mucous membranes to the attack of the various bacteria which are so frequently present and act as etiological factors in the production of suppurative inflammation of the accessory sinuses. During the course of such acute diseases as scarlet fever, measles, diphtheria, typhoid fever, pneumonia, influenza, tonsillitis and rheumatism, there is often an inflammatory process set up in these cavities. Exposure to irritating dust and vapors is liable to cause local inflammations which easily become infected. Foreign bodies accidentally introduced into the nose or intentionally placed there to stop hemorrhage or give support to a fracture may, by their mechanical irritation and obstruction, cause an inflammatory process in one or more of the accessory cavities. Tumor growth, syphilitic gummata and ulcerations, and perhaps local tuberculosis, as reported by Lapalle, although Howard and Ingersoll failed to find tubercle when looking especially for it, may also act as etiological factors. Near thickly settled communities, where so many are constantly spitting collections of pus upon the street, which during dry and windy weather is soon reduced to powder, contaminating not only the air outside but filling every house, we have a very important source of infection, and almost every rhinologist has observed the frequency of acute suppurative processes following such spells of dry, windy weather. This is especially noticeable during cold winter weather, whenever the ground is free from snow.

E. Fränkel and Weichselbaum were among the first to direct our attention to the organisms associated with suppurative disease of the accessory cavities. The Klebs-Loeffler bacillus has been found by E. Fränkel, Weichselbaum, D. Mochowsky, Pearce and others. The pyogenic organisms, the various streptococci and staphylococci, have been found and reported by many observers. The bacillus of influenza has been demonstrated by Weichselbaum in 90% of autopsies on patients dead of influenza. The onset often coming, as it does during acute illness or following a rhinitis, is liable to escape the patient's attention, and as many cases are of months and perhaps years' duration when they come to the physician's care, it is not remarkable that it is impossible to find the etiological factors in so many of them. Sixty-one of my cases consulted me for deafness, some with and some without tinnitus, and gave no clue to the sinus trouble either in the past history or present symptoms except the general statement that they had catarrh. Eighty-three attributed the beginning of their trouble to an attack of influenza. Seventeen cases had had constant catarrh since attacks of diphtheria. Twelve patients claimed to have had no trouble until after a severe injury to the nose. Eleven were of the opinion that they had been free from nasal symptoms until after an attack of scarlet fever. In eight cases no symptoms were complained of, or at least remembered, until there was cough and other signs of pulmonary tuberculosis. Only seven cases were attributed to syphilis, although twenty-three had at some time been afflicted by this disease.

Five thought that a prophylactic dose of diphtheritic serum was responsible for all of their trouble, and three that vaccination was surely the cause. I saw one case where a left sphenoid and posterior ethmoid suppuration started during an attack of typhoid fever, and persisted in spite of treatment until the anterior portion of the sphenoid was removed and the cavity curetted. I cannot prove that these cavities were healthy before the fever, but there were no symptoms, and I had treated one patient for a suppuration of the right ear for two months before the onset, and had repeatedly examined the nose and naso-pharynx. Culture taken of this case showed streptococcus and typhoid bacillus. In the remainder of this series, numbering thirty, no cause was given, and when we consider the great number of cases which do not give symptoms of sufficient severity to direct attention to the nose, it is evident that many of these could have existed prior to the existence of the supposed cause. For the same reasons autopsies in certain diseases can only demonstrate the presence of sinusitis, and not prove the disease as the cause of the suppuration, which may have been present prior to its onset.

Our knowledge of the pathology of the accessory sinuses has been derived from both postmortem examinations and clinical observation, and, although there are marked differences of opinion as to the existence and frequency of the pathological conditions found and reported, the majority of pathologists as well as clinicians are agreed that the changes are those found in mucous membranes upon other parts of the body. Many and perhaps the majority of all acute inflammations tend to subside without treatment, and if the symptoms have not been very severe or alarming in character the patient has not consulted a physician. Inflammation of the frontal sinus, if not so severe as to cause ulceration, will in the great majority of cases subside. The outlet, unless blocked, is so situated as to give good drainage and probably only a very small percentage becomes chronic. The pathological conditions found vary according to the severity and duration of the disease, the ease with which the secretions are evacuated and the resistance of the membranes attacked. There may be simply congestion or inflammation with round-cell infiltration, or there may be ulceration of the mucous membrane with granulation tissue, polypoid or cystic formations, or even caries and necrosis of the underlying bone. Pressure in a retained cavity may distend its walls or cause necrosis and rupture through. In this manner the various groups of cells may become joined or fistulous openings may take place into the orbit, cranium, nose or naso-pharynx. A free opening into nose or naso-pharynx may so drain the infected cavity that the trouble subsides without any other interference. When there is a discharge of pus over the mucous membrane in the nose or throat for any length of time, it is usually found to be puffy, of a more or less deep red color, and often presenting a glassy surface. In cases of long duration there is often an atrophic condition, and there is still much discussion as to whether the atrophy or the sinusitis is the primary lesion. During the last three years there has much been added to the side of the sinusitis as the primary

affection. In 14 cases I had to deal with atrophy accompanied with the formation of foul-smelling crusts, and, although I cannot positively say whether the sinusitis or the atrophic condition was primary, I can say that in 11 of these cases after relieving the sinusitis the crust formation ceased and with it the odor. Two of these have remained apparently free for over three years and four for over two years.

The direct irritation of the pus may cause inflammation of the naso-pharynx, and by extension produce inflammation in Eustachian tube and middle ear. This may be found in various degrees of intensity. The pus when it reaches the pharynx and the larynx may produce marked inflammatory processes with the accompanying symptoms. In one of my sphenoid cases there had been necrosis through roof. There was no normal outlet to be found and after drilling through floor pus fairly poured out. I collected two fluid ounces, showing, as did some of the symptoms, that there was likely an epidural abscess.

(To be continued.)

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL.

CLINICAL meeting of the staff, held Dec. 12, 1902, in the Treadwell Library, the President, DR. C. B. PORTER, in the chair.

DR. J. B. BAIN reported briefly a case of blank cartridge wound of the hand, from which tetanus bacilli were isolated. The wound was freely incised and all affected tissues removed. No tetanus developed.

DR. S. J. MIXTER: I remember that when our attention was so strongly called to this subject two or three years ago on account of the tetanus cases, I insisted that all cases brought to the accident room with cartridge wounds should have the most careful attention, that the injured tissue be cut out and the wound thoroughly cleansed, and if the patient refused to take ether and have the wound attended to in this thorough way he should not be treated at this hospital. I think that this is necessary. No case has been worked up so carefully as this, but the treatment outlined by Dr. Bain is the treatment used in the accident room.

DR. H. H. A. BEACH demonstrated the following cases:

CASE I. ENLARGED THIRD LOBE OF PROSTATE GLAND; CHRONIC RETENTION; SUPRA-PUBIC EXPLORATION; REMOVAL OF THIRD LOBE AND THREE CALCULI.

The patient was a man of fifty-five years, with a history of arthritis at twenty. Six years ago had frequency of micturition, gradually increasing, with pain; slight incontinence at night. Three years ago had three pints of urine drawn by catheter, and was confined to bed for five weeks. Since then has never been able to pass urine except by catheter No. 8. Four weeks ago he began to have pain in passing catheter, which lasted for some hours afterward. For two weeks pain was constant, sharp and shooting from the neck of the blad-

der to the glans penis. By the rectum the prostate was not tender, nodular, or enlarged sufficiently to account for symptom. A No. 10 catheter passes easily into the bladder, evacuating foul, cloudy urine. Under ether, a stricture found and dilated to No. 32.

Constant drainage and the bladder washed out with borate solution. The urine became clear, but the pain at the neck of the bladder returned, and the drainage was discontinued, the pain after catheterization increasing. Suprapubic cystotomy was done, and a valvelike process of the prostate found obstructing the inner opening of the urethra. It was excised, and three small calculi removed. For the free bleeding from the fresh surface left after excising the obstructing lobe, a solution of adrenalin was applied on a piece of gauze held by forceps, with the effect of immediately blanching the tissues and controlling oozing. His progress has been uneventful; the bladder wound has closed. He can retain his urine five or six hours, when he uses the catheter, without pain. He is beginning to pass urine without catheter.

CASE II. CANCER OF PYLORUS; OBSTRUCTION TO PASSAGE OF SOLID FOOD; GASTROENTEROSTOMY WITH THE MCGRAW LIGATURE.

Patient a man fifty-eight years old. First noticed a tumor in the epigastrium between eight and nine months ago. Distress after eating solid food began two months before that. Stomach contents show no hydrochloric acid. In patient's epigastrium, capacity 1,400 cc., is felt a hard, slightly irregular, movable mass 8 x 5 cm., the lower border at about the level of the umbilicus, left border just to the left of the median line.

Vertical incision of six inches through the right rectus muscle. Tumor about the size of an egg, surrounding the pylorus. Enlarged, hard glands in gastro-hepatic omentum, retro-peritoneal region and adjoining mesentery. A loop of jejunum brought up to greater curvature of stomach near pylorus and fastened with a row of Lembert silk sutures, two and one-half inches long. Just above this a McGraw rubber ligature inserted joining stomach and intestine, taking in the right, one and three-quarter inches of each organ, then protected by a second row of silk Lembert stitches. He had very little constitutional disturbance from the operation, the temperature rising 100.8 once only immediately after the operation. He was fed with nutrient enemata for nine days and then beginning with small quantities of milk and lime water, his diet was gradually increased. Wound solid and stitches out on the seventh day. Between the tenth and fourteenth day after operation he had some vomiting, and finally ejected the ligature. After that his gastric disturbance quieted down, and he has taken more or less solid food every day and digested it, relieving the embargo upon a general diet. The case is reported as contribution to the literature of the McGraw rubber ligature, recently brought to the attention of the profession.

CASE III. — BILIARY FISTULA FOLLOWING CHOLECYSTOTOMY; PERSISTENT SYMPTOMS OF BILIARY OBSTRUCTION; CHOLEDOCHOTOMY; COMPLETE RELIEF.

The patient, a negro woman, thirty years old, en-

tered the hospital with a fistulous opening about an inch below the right costal border. This had opened and closed irregularly during the past year and a half, following an operation, performed in Tennessee, for the removal of two gallstones. The drainage tube had remained five months.

When the fistula is closed the patient reports that she has "yellow eyes, dark movements of the bowels and urine," when it is open she has "clear eyes, light-colored movements and urine."

She has frequently abdominal colic, with pain in the right shoulder, and is disabled for work. During the past week the fistula discharged bile very freely. The scar of the operation was solid, and a firm mass, the size of a hen's egg, could be felt below it in the direction of the umbilicus.

Through an incision of four inches parallel with the costal border and below the old wound, the peritoneum was opened.

Many adhesions were found, masking the gall bladder, the inferior surface of the liver and adjoining intestines nearly to the median line. After a careful exploration of the adhesions in the direction of the common duct, a hard body could be felt by carrying the finger beneath them. The duct, however, could not be exposed from its superior surface without damage to adherent intestine, and other structures, nor could I push the stone into the intestine. Therefore, after carefully walling off the general peritoneum cavity, I opened the duodenum and felt the stone from within, then cutting into the common duct, released a stone the size of a marble, not faceted. The wound in the duodenum was then closed with silk Lembert stitches. The abdominal wound closed and drained. Nutrient enemata were used for the first few days and convalescence was uneventful. She was discharged well, with a soundly healed wound, in seven weeks.

CASE IV. CHOLELITHIASIS; CHOLEDOCHOTOMY; COMPLETE RELIEF.

The patient, a man thirty-nine years of age, two years ago had for three weeks diarrhea, nausea and vomiting, dull pain in epigastrium and jaundice. The urine dark and stools clay-colored.

Seven months later, a chill with excruciating pain in epigastrium shooting through to the back, under the shoulder-blade, vomiting and profuse perspiration. With morphia pain was relieved in about eight hours. He was jaundiced for a few days, had dark urine and clay-colored stools. In a year and a half, he had about twelve similar attacks, though not as severe. Never disabled for more than a day. Five months ago had a severe attack, the pain lasting seven or eight hours; since then, mild attacks every ten days or so. The last, one week ago, pain occurred in the afternoon. He vomited, and with the aid of morphia he was relieved in the course of four hours. He felt poorly the next day and was jaundiced. Upon entering the hospital he was feeling well. There was slight general jaundice, but no tenderness of the gall-bladder region. The upper border of liver dulness at the fifth rib. Upon full inspiration, the liver could be felt one finger's breadth below the costal border.

Incision of five inches into peritoneal cavity below the right costal border. Transverse colon, gall bladder and small intestine were adherent in

a solid mass. By cautious exploration with the finger from the under side of the mass, a stone could be felt in the upper part of the common duct. By manipulation the stone was worked back into the gall bladder, only a small area of which was visible between adherent coils of gut. The stone was worked along to that point and held firmly between the thumb and forefinger. The gall bladder was opened and a stone the size of a marble removed. Several smaller stones were fished out with a scoop. No evidence of malignant disease was detected. A glass drainage tube was tied in the gall bladder, from which flowed some ounces of bile, and the abdominal wound closed. On the first and second days after the operation he vomited bile several times. His tube was removed on the seventeenth day, convalescence was without incident, and the wound was solidly healed one month after the operation, when he was discharged well.

CASE V.—PROLAPSE OF THE RECTUM;
OPERATION; CURE.

Patient was a woman fifty-eight years old, the mother of ten children.

She had no urinary symptoms, but was usually constipated. Two years ago the rectum showed a tendency to protrude from the anus, which has become much distended, and now permits a prolapse of five inches. This is easily brought about by standing, walking, during defecation and micturition. She has always been able to reduce it by crossing her legs, or by lying down. She has a slight cystocele and the uterus is much atrophied.

An oblique incision of three and a half inches through the abdominal muscles in the left iliac region as for artificial anus, through this the sigmoid flexure was caught up and hauled tight so that there could be no protrusion at the anus. The intestine was then stitched by a double row of Lembert sutures of chromic catgut to the peritoneal borders of the wound. The muscles were then united over the intestine in layers, the skin with silkworm gut sutures, the latter were removed on the fourth day, the union perfect. The bowels were not moved as usual after a laparotomy. She had soft solids on the eighth day, and house diet on the ninth day. Bowels moved spontaneously on the eleventh day without any prolapsus.

Discharged well.

Reported at the hospital three months after in as good condition as at time of discharge.

CASE VI. HYDRONEPHROSIS; OPERATION.

Patient was a woman thirty-one years old. Her health had been good until three years ago, when she had an attack of severe pain under the right costal margin. At that time a decided lump was felt in the region of the gall bladder, which was tender on pressure. The size of the mass seemed to bear no relation to the quantity of urine passed. She had vomiting, jaundice and clay-colored stools. For six months she was ailing more or less. Eight days ago a similar pain was felt and the mass under the ribs reappeared. For two days she vomited and was jaundiced, the stools clay-colored. The jaundice has disappeared, the pain remains, but is no worse and the size of the mass has diminished.

Upon examination the abdomen was not distended. Just below the costal border is a mass of the size and shape of a pear, which is smooth and moves with respiration, being apparently connected with the liver. It is slightly tender upon bimanual pressure. No jaundice. Pelvic examination negative. On the day after entrance no pain or symptoms.

During the next four days the temperature rose at night and the mass enlarged to size of a grape fruit, fluctuating from front to back through the loin and evidently involving the kidney. The abdomen was opened by an incision of five inches through the outer border of the rectus muscle, extending downward from the free edge of the liver. The tumor was found to be retro-peritoneal. The left abdomen was explored for a kidney, and one found in normal position. The gall bladder was normal, also the appendix. The intestines were then pushed to the left side with a mass of gauze, and the peritoneum opened for about four inches outside of the ascending colon, reflecting the peritoneum, so as to expose the kidney and ureter of the right side, the pelvis of the kidney was distended to the size of an orange and the organ itself displaced downward for three inches. Following the ureter downward the upper one and one-half inch was much distended, then a sharp kink was found with an S bend, and below this point the ureter was collapsed. On pushing the kidney up into normal position, the bend disappeared, the pressure was relieved and the collapsed ureter became suddenly filled with fluid, and the tumor as rapidly diminished. With gentle pressure one half of the contents of the kidney pelvis passed downward in a few minutes. The kidney was now turned so that its convexity faced downward, toward the ureter, which provided for the most complete drainage of its interior and was then fixed in that position by some sutures to the eleventh and twelfth ribs. By including the lower part of the capsula, the kidney was suspended in a slinglike support, completely obliterating the kink. A gauze handkerchief was packed beneath it, until the adhesions should be firm and the wounds closed. In a week the gauze was removed. Temperature was normal, urine about 40 oz. daily.

In twenty-five days after operation no mass could be felt in the loin, the urine was normal and only a small granulating area in the scar.

Discharged relieved.

(To be continued.)

Medical Progress.

PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Concluded from No. 11, page 287.)

DISINFECTION.

Further experiments have been made and reported upon by Calmette and Hautefeuille¹¹ upon the efficiency of the Clayton apparatus for the evolution of sulphurous acid in the disinfection of ships. The experiments were made upon a ship of 1,200 tons at Dunkirk, France. Recent cultures of

¹¹ Rev. d'Hygiène, October, 1902, p. 385.

typhoid bacilli, cholera and plague were employed for the experiments, part of which were conducted in the hold of the ship and part in a stateroom on deck, having two berths furnished with mattresses. In all bands of flannel were used and impregnated with the disease germs, some of which were introduced dry and others moist. Control samples were kept on deck outside the influence of the gas. The machine was put in operation at 10.55, and at 1 P.M. the gas in the hold amounted to 5% of the air.

At the inlet of the gas the percentage was as high as 15%.

In the cabin or stateroom the samples were placed upon the mattresses in the berths, and some were covered with a coverlid folded double. The gas in this room at the level of the berths rose to 8%. After stopping the action of the gas, the germs were allowed to remain exposed two hours and were then removed for examination. No pains were taken to close this room hermetically, a scupper four inches wide under the lower berth remaining open throughout the experiment.

As the result of these experiments the authors conclude that gas produced under pressure by the Clayton apparatus is sufficient for the disinfection of the holds of ships when they contain objects soiled with the germs of typhoid fever, cholera and the plague.

It will also kill rats, fleas, bugs and other vermin, and will not injure delicate fabrics, grain, sugar, fruit and other objects which form the cargoes of ships.

RECENT ENGLISH EXPERIMENTS.

These experiments were conducted under the direction of the London County Council, and were reported upon by Dr. Murphy, Feb. 10, 1902,¹² the object being to determine the comparative value of different disinfectants used for household disinfection.

The disinfectants submitted to test were carbolic acid, permanganate of soda, bleaching powder, corrosive sublimate, formalin and sulphurous acid.

Seven microbes were experimented upon, including those of typhoid fever, diphtheria, cholera and tuberculosis. Four kinds of material were employed—cloth, unpainted or unvarnished wood, linen and wall paper. Microbes distributed in broth, milk or melted gelatine were liberally applied, and were exposed to the action of the disinfectants.

The typhoid bacillus was killed by all disinfectants except Condly's fluid and bleaching powder.

Condly's fluid gave generally negative results; bleaching powder also failed for the disinfection of cloth and wood infected with the typhoid bacillus after one hour's exposure, but succeeded in twenty-four hours.

The bacillus diphtheriae was killed by formalin and sulphur dioxide. The cholera vibrio was destroyed by all disinfectants except Condly's fluid and bleaching powder.

Anthrax spores were only destroyed with certainty by perchloride of mercury.

For tubercle bacilli, carbolic acid and corrosive sublimate were the only efficient disinfectants.

¹² Report of the Medical Officer of Health, London, 1902.

Neither formalin nor sulphur dioxide were efficient for the disinfection of wood and cloth infected with this bacillus.

DISINFECTION OF NEW CLOTHES.

Sir Charles Cameron¹³ relates several instances in which new clothing appeared to be the vehicle of the scarlet fever contagion. The new recruits of the Royal Irish Constabulary lodged in barracks at Phenix Park, Dublin, were often attacked with scarlet fever, and suspecting the new uniforms as sources of the disease, he ordered them to be disinfected before being used. This measure resulted in a diminution in the attacks.

DISINFECTION OF THE HANDS.

Calvello,¹⁴ after a series of experiments with the essences of essential oils, believes them to be superior to corrosive sublimate for the disinfection of the hands. In consequence of the collection of detritus around and under the finger nails, he finds that the ordinary methods of disinfection are not efficient (scrubbing and the application of soap, alcohol and corrosive sublimate). Some of the essences have decided bactericidal power, and are more penetrating. The essences chosen for experiment were canella, thyme, geranium and patchouly. He at first employed mixtures of distilled water with 6% alcoholic solutions of the fresh essences. He found it necessary to increase their strength to a 9% solution of canella, 12% of thyme and 18% of geranium. These solutions gave satisfactory results. The patchouly has too feeble antiseptic power for general use. The microbes employed for experiment were the staphylococcus pyogenes and the bacillus coli.

SCHOOL BACTERIA.

Under this title Cacace¹⁵ presents the results of some examinations of the dust of schoolrooms in Capua. He found sarcinae, b. coli, staphylococci, blastomycetes, Penicillium glaucum and Aspergillus niger. In one gram of dust collected in the principal class rooms, there were from 5 to 25 million germs; in specimens from the gymnastic hall, 17 to 40 millions, and in the infant school 70 to 193 millions. The month of June appeared to be the most favorable for their development, of the different months of school attendance. Dust collected at the close of each session contained 2 to 5 millions more than at the beginning.

Inoculations of this dust upon guinea pigs caused death by septicemia. Other pathogenic bacteria were found in the blood of the dead animals, but not those of tuberculosis.

The excess of germs in the dust of the infant school was probably due to its location, on the ground floor and near a dusty street.

THE AIR OF UNDERGROUND BAKEHOUSES.¹⁶

Dr. Newman, Medical Officer of Health of Finsbury, England, in an investigation of the bakehouses of his district, presents the following summary:

¹³ Brit. Med. Journ., Feb. 15, 1902, p. 286.

¹⁴ Lavori di Laboratorio dell'Istituto d'Igiene della R. Università di Palermo, vol. v, p. 121.

¹⁵ Centralbl. f. Bakteriologie, Parasitenkunde u. Infektionskrankheiten, vol. xvii, p. 653, 1901.

¹⁶ Public Health, London, December, 1902, p. 150.

The air of the typical underground bakehouses:

(1) Contained 14.8 volumes per 10,000 of carbonic acid (CO_2), as compared with 4.9 in above-ground bakehouses and 4.3 in the streets.

(2) It contained between 10 and 24% less moisture than outside air surrounding the bakehouses.

(3) It contained at least four times more bacteria than surrounding street air, and three times more bacteria than the air of a typical above-ground bakehouse.

BORAX OR BORIC ACID AS FOOD PRESERVATIVES.¹⁷

Vaughan and Veenboer have reviewed the recent literature of borax and boric acid as food preservatives, and present the results of experiments which they had conducted in which chopped meat, butter and cream were treated with definite quantities of borax and boric acid. They conclude that the amount of boric acid to be allowed in chopped meats should be limited to 0.5%, but that there is no objection to the use of as much as 1.5% when it is to be sprinkled on the surface of the meat, since most of this is washed off again. They also give the following conclusions; both from their experiments and from the literature already published:

(1) The use of borax or boric acid as a preservative in butter and cream in the quantities specified in the recommendations of the English commission is justified both by practical results and by scientific experimentation.

(2) The dusting of the surfaces of hams and bacon, which are to be transported long distances, with borax or boric acid, not exceeding 1.5% of the weight of the meat, is effective and not objectionable from a sanitary standpoint.

(3) Meat thus dusted with borax or boric acid does not become slimy, because the preservative thus used prevents the growth of aerobic, peptonizing micro-organisms.

PREVENTION OF FISH POISONING.¹⁸

Prizes of 5,000, 1,500 and 1,000 roubles (\$3,500, \$1,050 and \$700) are offered by the Imperial Academy of Sciences, and the Ministry of Agriculture and Crown Domains of Russia to persons who:

(1) By careful experiments define the qualities of poisons contained in fish.

(2) Investigate the action of the poison on the central nervous system, heart, circulation and digestion.

(3) Present an accurate illustration of the pathological secretions in the various parts of animal and human bodies caused by such poisoning.

(4) Present a description of the signs distinguishing fish containing poison from normal fish.

(5) Indicate methods for the prevention of development of poison in fish; and

(6) Indicate antidotes and general provisions against poisoning by fish.

Essays written in English should be submitted to the Ministry of Agriculture and Crown Domains (St. Petersburg) by Oct. 1, 1903.

MANUFACTURE AND SALE OF ICE CREAM.¹⁹

The corporation of London has published regula-

tions relative to the manufacture and sale of ice cream, the principal points urging the necessity of absolute cleanliness in the places, processes and utensils employed in manufacture. It must not be made in living or in sleeping rooms. If the materials are boiled together, freezing must take place immediately afterward. It must not be kept more than forty-eight hours. If then remaining unsold it must be destroyed.

BRITISH SANITARY LEGISLATION OF 1902.

The past year was not very fruitful in the enactment of new laws relating to the public health. The only new acts of this character were the Cremation Act (2 Edward VII, Chap. 8), the Midwives Act (2 Edward VII, Chap. 17), and the London Water Bill.

By the first of these the burial authorities are permitted to provide and maintain crematories, the plans and site being subject to the approval of the local government's board. No crematory can be established within two hundred yards of a dwelling, except by consent of the owner, nor within fifty yards of a public highway. The Secretary of State must make regulations and prescribe forms of certificates.

By the terms of the Midwives Act, midwives must be certified after April, 1905. After April 1, 1910, "No woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a qualified medical practitioner unless she be certified under this act."

Provision is made for the formation of a central midwives' board, with power to frame rules, appoint examiners, decide on plans and times for examinations, and to issue and cancel certificates of proficiency.

The Metropolitan Water Act did not become a law until Dec. 18, 1902, when it received the royal signature. A water board is thus established for the purpose of acquiring and managing the different water works belonging to the various companies which now supply London. It is estimated that from forty to forty-five million pounds sterling will be needed to carry out this great work. It remains to be seen whether the people of London will still be contented to use the filtered water of the Thames and its tributaries, or will push for more distant and purer sources.

FRENCH SANITARY LEGISLATION OF 1902.

The French government, in February, 1902, adopted a new sanitary code, which went into operation a year later (February, 1903). It consists of five titles and thirty-four articles or sections. The first title, embracing eighteen sections, treats of general sanitary measures, including the prevention of infectious diseases and the sanitation of houses and tenements. The second title treats of the powers and duties of the different sanitary authorities, general and local, including those of the Consulting Committee of Public Health of France.

Title Three treats of the expenses of sanitary work, and Title Four of the penalties, for violation of the provisions of the code.

The most important change from former laws is to be found in Article Six:

¹⁷ Am. Med., March 15, 1903, p. 431.

¹⁸ Brit. Food Journ., January, 1903, p. 3.

¹⁹ Brit. Food Journ., December, 1902, p. 267.

"Vaccination is obligatory during the first year of life, and revaccination during the eleventh and twenty-first years.

"Parents or guardians are held personally responsible for the execution of this measure.

"A rule of public administration, adopted after consultation with the Academy of Medicine and the Consulting Committee of Public Health, will fix the necessary measures for carrying out this law."

FRENCH REGULATIONS RELATIVE TO EMBALMING.

Brouardel³⁰ quotes certain French regulations now in force to the effect that a vial containing a specimen of the same substances that have been used in the process of embalming shall be placed by the side of the body.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

STATED meeting, Feb. 5, 1903, the President, DR. JOHN M. FISHER, in the chair.

THE ETIOLOGY OF ECLAMPSIA, BY CHARLES S. BARNES, M.D.

The causative factor or factors are not known. The clinical symptoms and pathologic findings are so varied as to lead investigators astray. Several theories of etiology were presented, as the theory of mechanical irritation by the enlarged womb; the so-called pressure theory whereby circulation of the kidneys is thought to be interfered with. Again, the malady has been considered as one of purely reflex origin, through innervation of the splanchnic nerves by pressure or by rhythmic contractions of the womb. Efforts to identify eclamptic convulsions with those of purely uremic origin have failed. The rational conclusion has been reached that the immediate cause of eclampsia is a systemic affection, an auto-intoxication; that the system of the pregnant woman is a laboratory in which are produced substances which may result in a self-destructive explosion. These toxins are probably animal alkaloids. The condition results from the gradual accumulation in the system of nitrogenous waste, due to an excess of nourishment, faulty metabolism and deficient excretory processes, one or all. Davis and Hermann have pointed out that the quantity of urea excreted is the best index of metabolism. The toxemia, however, is not ascribed to urea, but to the excess of urea-forming substances retained in the system. There is at present no good ground for belief in a bacterial source of the disease, though bacterial infection of various sorts predisposes to toxemia. The commonly accepted theory is that toxemia is the result of a vice constructive metabolism.

The question is raised as to the part of the organism responsible. The theory attributing the trouble to a diseased or dead fetus is untenable. Waste from a growing fetus may possibly determine an attack. Recent observers regard the placenta as having a remarkable glandular activity, perhaps liberating toxins into the maternal blood. The kid-

neys, while sometimes a contributing factor, often, instead, suffer the consequences of toxemia. There is strong ground for belief that the liver is the most important of the excretory organs, and that the urea index is significant of the functional activity or inactivity of the liver rather than of the kidneys. In toxemia, the skin is dry and the exhalations from the lungs are especially noxious. Thus the symptoms, though flashed outward by way of the nervous system, point directly to the derangement of the excretory organs. The conclusion has been reached by some that the function of the thyroid, normally enlarged in pregnancy, is to regulate and control metabolism. Numerous contributory or predisposing causes were enumerated, among them heredity, as to disease, temperament or habits; excess of nitrogenous food; inactivity; beverages, alcoholic, tea or coffee; bad hygiene; systemic diseases; diseases of the excretory organs; climatic influence; multiple pregnancy and primiparity; mental depression or undue strain; ptomaine poisoning; exposure; mental or physical shock; pain, especially that of labor.

The immediate cause of a convulsive seizure has been ascribed to an acute anemia of the brain or to edema of that organ. But the most plausible and rational conclusion is that, in toxemia, the poisons circulate throughout the system, including brain and cord, until, the toxins accumulating, there comes a time when the equilibrium of the nervous system can no longer be sustained, and there is an outward discharge of nervous energy in convulsive phenomena. Emphasis was laid upon the predisposing and contributing causes, such as are so imprinted upon the excretory and nervous systems of every toxic patient that any intelligent and diligent practitioner of medicine may read them, and having read, may employ successful prophylactic treatment of eclampsia.

THE TREATMENT OF ECLAMPSIA, BY WILMER KRUSEN.

Dr. Krusen gives statistics showing the great necessity for further knowledge of this alarming complication of labor. He thinks that to insist dogmatically upon a definite and undeviating method of treatment for this or any pathologic condition is to confess ignorance of therapeutic agencies, since what is exactly adapted to one case may be futile or damaging in another. He divides the treatment of eclampsia into: (1) prophylaxis; (2) treatment of convulsions; (3) treatment during intervals; and (4), after-treatment.

Prophylaxis is directed to the prevention of convulsions and the strengthening of vital processes. The amount of urea excreted is considered the best guide, and when it falls below 1.5% there should be stimulation of all excretory processes. The liver and the intestinal tract should be stimulated by the administration of frequent and small doses of calomel, one-tenth grain three times daily for one or two weeks. Caffeine in three-grain doses, three times daily, may be given for diminution of urine. If there is high arterial tension, nitroglycerin in full doses is indicated. The writer calls attention to the connection between the inadequate action of the thyroid gland and the arrest of renal secretion, quoting Nicholson, who has given thyroid extract in eclampsia with favorable results, and advises that it be

³⁰ Brouardel: *Death and Sudden Death*, 1902, p. 101.

given in five-grain doses night and morning, and proteid foods avoided. Saline solution dilutes the poison in the blood and produces diuresis and diaphoresis. Iodid of potassium is sometimes added to the saline solution, the iodine acting as a stimulant to the thyroid gland. Dr. Krusen thinks that upon a thorough investigation of the relationship between the thyroid gland and pregnancy depends much of the future success in the prophylaxis of eclampsia.

In the treatment of the convulsions he considers chloroform as the anesthetic *par excellence* for their control, and inhalation of it should be continued until the paroxysm abates. Oxygen may be given in conjunction with it. Ice bags applied to the back of the head and neck will also aid in warding off and controlling the attacks.

In the treatment during the intervals one of the most important measures is venesection. It is indicative when the pulse shows high arterial tension, is full, rapid and bounding, and the face of the patient is suffused or almost cyanotic. In such cases it frequently rescues the patient from impending pulmonary edema and apoplexy; and it also abstracts a large amount of noxious principles from the system and will do more for the relief of the patient than any other one procedure. By using copious injections of normal salt solution the depressing effect of bleeding can be counteracted and the unknown toxins diluted. Since the salt solution stimulates the heart, promotes diuresis and diaphoresis and dilutes the toxin, it must be classed as a rational method of treatment. Bicarbonate of potassium is sometimes added to the solution. Morphia can be used hypodermatically. It is an agent of great power and rapid action, things often essential in the prevention of repeated convulsions. The writer condemns hot air and hot-water baths, and advises as purgatives croton oil, calomel or some saline; as carbon dioxide poisoning soon occurs in cases of repeated convulsions, oxygen by inhalation may be used. In regard to obstetric treatment, he believes that the teaching of Duhresen is sound, that if eclampsia comes on during the last month of pregnancy when the child is viable, its speedy extraction is desirable. But the high mortality of Cæsarean section leads him to condemn that operation unless some condition, such as pelvic deformity, prevents vaginal delivery. If the patient is in the second stage of labor, all authorities agree that the uterus should be emptied as speedily as possible, but in cases in which labor has not begun, or is in the first stage, opinions differ. But as expectant or palliative treatment means certain loss of the child and the loss of 30% of the mothers, he believes that while the obstetrician should not cease to combat the convulsions, the sooner he produce or hastens labor the better for both lives concerned. Mechanical dilation of the cervix, either manually or with dilating bags, or deep cervical incisions, properly performed under rigid antisepsis, is the best method of procedure. Delivery should be accomplished as rapidly as possible, since the prompt emptying of the uterus contributes greatly to the recovery of the patient. The after-treatment should be carried out along the ordinary lines followed in the care of the puerperal patient, but with more absolute quietude, and with more vigilant attention to all the excretory organs.

DR. R. C. NORRIS. The papers that have been

presented have outlined our knowledge of the etiology, the pathology and the treatment of eclampsia about as accurately as could be done. There are a few points which I think this discussion should emphasize.

In regard to etiology, the profession, recognizing the fact that eclampsia is believed to be a toxemia, should pay attention to the functional activity of the liver of the pregnant woman quite as closely as to that of her kidneys. It is common practice to have a bottle of urine of the pregnant woman sent to the physician and to have it tested for albumin and for its specific gravity, and so long as albumin is not found and the specific gravity is near the normal, no further attention is paid to the case. I believe that such an examination of the urine is absolutely worthless, except when grave kidney lesions exist. Others will go farther and have a critical analysis of the urine made, involving a knowledge of the amount excreted in twenty-four hours and the percentage of the urea, and so long as they find these two factors approaching the normal they will give no further attention to the case. This I also believe is a false security. While we know that 2% of urea is the average amount passed, we must know that this 2% represents a proper quantity of urine passed. Moreover, it is our duty to know not only the amount of excrementitious products the patient is able to excrete, but we also must have knowledge of what may remain to create a toxemia. That is only learned by seeing the patient frequently and noting the general symptoms of toxemia, such as headache, neuralgia, coated tongue, hebetude, salivation, insomnia, nervous irritability, eye symptoms, etc. The approach of a toxic storm usually can be seen by the alert physician. In a case under my care in which the most critical urinalyses were made with normal findings, the constitutional condition presented symptoms of toxemia requiring the most vigorous treatment. While urinalysis is most important, it should be remembered that it is only an index of kidney elimination and fails to indicate the metabolic and toxin-destroying power of the liver.

When we come to the question of treating these cases, I agree with the author that prophylactic treatment is the most important. Drugs that aim directly to promote the activity of the liver are more valuable to the pregnant woman than diuretics. Diet that lessens the tax on the liver is most important. Calomel with salines should be used frequently by a pregnant patient, apparently perfectly well, for she needs to have her liver prodded whether constitutional symptoms indicate that things are going wrong or not. A point of practical value is lavage of the intestines. While we do not know to what extent the intestines are involved in the etiology, I do know that toxemic patients in my practice receiving intestinal lavage two or three times a week show improvement.

When we come to the treatment of convulsions, there is a wide variation in the discussion of details. Dr. Krusen omitted mention of chloral and of veratrum viride, and laid special stress upon bleeding. He is, no doubt, correct that bleeding is indicated in some of the cases, but in some cases the women are anemic; there is pallor and the blood count will show diminution in the proportion of hemoglobin

and in red blood corpuscles. Depriving such patients of 20 to 30 oz. of blood does distinct harm. Such cases are better treated by the use of *veratrum viride*. The anemia of pregnancy is closely associated with toxemia, and has a practical bearing upon the use of venesection. When the pulse is 160 to 180 with but little volume, and when the patient shows profound anemia, an abstraction of 20 to 30 oz. of blood may be distinctly disadvantageous and is not going to eliminate much poison. It will lessen blood pressure, and the real value of bleeding for eclampsia is the action upon the blood pressure. The modern practice of not bleeding every case is better than bleeding every case. We must use the best of judgment when deciding in favor of venesection, bearing in mind the condition of the pulse and the blood count. There is a wide diversity of opinion as to the value of *veratrum viride*. I cannot understand why some men do not appreciate its value, unless it be that they have never employed it. I have repeatedly used it and, so far as the cessation of convulsions is concerned, have observed more benefit than from any other drug I have ever employed. It, too, must be given cautiously. The dosage differs according to whether the tincture or fluid extract is employed. I have seen a patient nearly killed by the use of twenty drops of the fluid extract administered hypodermatically. The initial dose should be five to eight drops of the fluid extract, to be repeated as soon as the effect diminishes. Sufficient should be used to keep the pulse in the neighborhood of 70 or 80. I am sorry Dr. Krusen did not discuss that in his paper. The value of full doses of chloral is well known.

I would like to give a word of warning as to the use of salt solution. I have found in some cases that an excessive amount of salt solution has aggravated the condition of the kidneys, has produced edema of the lungs, and helped to do the very thing which we aim to avoid. I should place as a limit one quart of salt solution and no more, until free diaphoresis, diuresis or catharsis has occurred. When there is edema of the lungs, it should not be employed at all. I have seen edema of the lungs aggravated and the patient's serum run out of her mouth as the result of too free use of salt solution. Large amounts of salt solution are of greatest value when *profuse* catharsis from saline purges has occurred.

I do feel that morphia is always contraindicated, but would reserve it for aggravated cases in which the convulsions recurred with great frequency and were not otherwise to be controlled. One grain to a grain and a half until the convulsions have ceased is an average amount to be employed.

Chloroform to be of any value must be administered by some one who can recognize the onset of a convulsion. There are prodromal symptoms of the eclamptic seizure, and during these is the time for the administration of the chloroform. Upon an attempt to give it during a seizure it will be found that very little enters the lungs, and for the same reason oxygen cannot be taken except between the convulsion seizures.

The necessity for delivering eclamptic patients quickly is always discussed. I have believed, on theoretical grounds, and practically my experience has borne it out, that the speediest method of de-

livery is not the safest one. If that were true, Cesarean section would be the ideal method. Next to that is rapid dilatation or incision of the cervix. I have incised the cervix and done craniotomy upon a dead baby, delivering the baby in eight minutes. This winter at Blockley I had an eclamptic patient on whom I did a Cesarean section. Both patients died in coma, despite most rapid deliveries. The method of the rubber bag to dilate the cervix in these cases of primigravidae with rapid cervixes is often too slow. The first duty is to treat the case medically, eliminate poisons, control the seizures, and then to begin by slower, less aggressive means to secure dilatation of the cervix. Here again we must consider the individual case. Some women are so weak that the shock of anesthetic and dilatation of the cervix will carry them beyond the point of recovery. Experience and good judgment are required for selecting a method of dilatation where the cervix is rigid. When the convulsions have been controlled, and when the patient has passed out of her coma, the rubber bag is sufficient. When the patient remains comatose, with repeatedly recurring convulsions, she should be kept under an anesthetic and a metal dilator used, such as Bossi's four-branched instrument, and the child extracted with forceps. That rapid method should be resorted to for desperate cases only. In other cases which improve under medical treatment, the slower plan of dilatation is safer.

To recapitulate, the practical points that I would emphasize are that while urinalysis is important, it must go hand in hand with personal interviews with the patient; to note the first signs of approaching toxemia; that the use of prophylactic measures includes, as most important of all, diet and attention to the woman's liver, and that among the means of elimination of toxins during pregnancy, the use of the intestinal canal is most valuable. For the control of convulsions, I would speak in praiseworthy terms of *veratrum viride*, and for rapid elimination of toxins, I would also speak of the value of free saline purgation. In an experience of ten years that has given me eight to ten eclamptic patients in consultation each winter and one or two additional in my own hospital, with but one exception, I have yet to see a patient die who responded to the free use of saline purges, in conjunction, of course, with other treatment. Speedy delivery is not always to be desired. Only in the gravest cases is this advisable, and then instrumental dilatation of the cervix offers the safest and best means of delivery.

DR. STRICKER COLES: I would refer especially to the early symptoms and to the prevention of eclampsia. I may have to change my ideas about this condition, but I believe from the cases I have seen that this disease is a preventable one. In other words, I believe that 90% of eclampsia can be prevented.

In my experience I have seen clinically three forms. One begins with Bright's disease. Some women may go into Bright's disease without any apparent toxemia. Of these cases I have had some eight or ten without any death at all. I look upon these as cases without danger, although some have albumin and almost solid urine. With reference to the mother there is very little danger, but this is not

the fact with reference to the child. Of these babies I have lost some before and some after birth. It is not easy to raise these children. The next form is that from toxemia. The patient has the symptoms of toxemia, headache, restlessness, malaise, indigestion and all the symptoms of toxemia, and the urine of these cases some two or three weeks before the patient will go into convulsions will show some signs. This sign will be in the amount of urea. If we find a patient eliminating 1.5% of urea with a normal amount of urine we do not find symptoms of toxemia. The danger point in my experience is when it reaches 0.5 of 1% I have never yet examined such cases in which the patient did not have headache and all the symptoms of toxemia. I have never seen a patient with a form of eclampsia that could not have been prevented.

(To be continued.)

Recent Literature.

Regional Minor Surgery. By GEORGE GRAY VAN SCHAICK, M.D., Attending Surgeon to the French Hospital, New York. Published by the International Journal of Surgery Co., New York. 1902.

The author in writing this book has striven to avoid subjects of a technical character as far as possible. He desires to describe the surgical treatment of these lesions daily encountered by the general practitioner, and the methods presented represent conclusions based on a personal experience of eighteen years of hospital, dispensary and private practice. The writer very justly claims that "minor" surgery well done often renders "major" surgery unnecessary. Hence the importance of this subject to the general practitioner.

The book is a small volume of 226 pages. It is well written; it is also confined closely to its proposed scope, an unusual feature in this type of book. The directions given are brief, definite and unobscured by theorizing. It is essentially a practical manual, and although in some instances there might arise a difference of opinion as to the method proposed being the most efficient, still it is usually a good one. Diagnosis of the commoner affections is briefly treated. After-treatment, as a rule, is omitted. The general way in which solutions and drugs are usually mentioned presupposes a considerable knowledge of surgical materia medica. With the exception that it is defective in its description of details of procedures, the book is attractive. It contains many practical suggestions, and its arrangement is good.

The Treatment of Fractures. By CHARLES LOCKE SCUDDER, M.D., Assistant in Clinical and Operative Surgery, Harvard Medical School, etc. Third edition, thoroughly revised. Philadelphia and London: W. B. Saunders & Co. 1902.

This work, the first edition of which was published in 1900, has not been allowed by its author to "gather moss." It is unusual for a book of this character to reach its third edition in so short a time.

It now appears as an octavo volume of 485 pages, increased from 457, with 645 illustrations in place of 611. Several new but not uncommon fractures are described. The chapter on gunshot fractures of the long bones is derived from a review of the observations acquired by the recent experience of military surgery with the effects of small caliber bullets.

The general text of the book has, the author states, been carefully reviewed, and an index appended. Photographs have been substituted for drawings in many instances, and the use of plaster-of-Paris more extensively illustrated. The general character of the book is preserved. It serves as a guide or manual for the treatment of fractures. The methods are, as a rule, described in detail. The author aims to not only tell *what* to do, but also *how* to do it. He tries to show by descriptive text, diagrams and illustrations of actual cases, the exact conditions which exist. The radiograph has been extensively employed for this purpose. The book is a valuable treatise on this especial branch of surgery, and represents well the present status of practice. Also the work of the publisher sustains the high standard of excellence shown in the former editions.

The Mattison Method in Morphinism. A Modern and Humane Treatment of the Morphine Disease. By J. B. MATTISON, M.D. 12mo., pp. 40. New York: E. B. Treat & Co. 1902.

This little book is a detailed description of a method of treatment of the morphine habit which the writer claims has proved successful in many cases, and is not attended with the suffering so common in many attempts to break off the habit. The essential features of this method are a moderately rapid withdrawal of the morphine, in about ten days on the average, and the production of a certain degree of nervous sedation and a consequent control of reflex irritation by bromide of sodium. Beside the details of this method of treatment, full directions are given for the treatment of such other conditions as may arise during the progress of the work.

The Proceedings of the Charaka Club. Volume I. New York: William Wood & Co. 1902.

There was organized in 1898, in New York City, a club of about ten medical gentlemen, who were interested in the history of medicine and in its artistic and literary side. The name of the club was taken from the Hindoo sage, whose work is the oldest on the subject of Hindoo medicine. Some of the communications of the members are contained in the present volume, a handsomely printed book of nearly one hundred pages, with an elaborate book-plate, and a number of half-tones and woodcuts. It has been edited for the club by Dr. Charles L. Dana, and the edition is limited to three hundred copies. The articles on "Hindoo Medicine," on the "Statues of Æsculapius," with its handsome illustrations, and on "The Evil Spoken of Physicians" deserve especial notice.

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ECLAMPSIA.

RENEWED interest in the study of eclampsia has followed the general advance in medical investigations in the last few years, and considerable attention has lately been given to the subject in recent medical literature. As long as our understanding of the etiology is at fault, so long must our treatment be empirical and consequently never uniformly successful. Good work has been done in various quarters in the endeavor to discover the correct etiology. Treatment has advanced prophylactically in that we can recognize pre-eclamptic symptoms and can often prevent convulsions by various timely measures. The problem of the true cause of the symptoms, however, still remains unsolved, but the close study which eclampsia is receiving, with the trend given to it by our advancing knowledge of physiology and pathology, will doubtless end before many years in its correct solution.

An extended discussion of the whole subject appeared in the February *Practitioner*, but a brief review of the theories of the etiology and treatment is of interest here. It is now generally conceded that eclampsia is not a disease of the kidneys, but arises from the circulation in the blood stream of one or more poisons of which the exact nature is unknown. These poisons appear to gain access to the circulation either from the alimentary canal or from the body metabolism or from both. The pregnant woman, having to deal not only with the results of her own tissue changes, but also with those which occur in the fetus, is more liable than under other circumstances to auto-intoxications. The organs of defence—the liver, kidneys, thyroid, etc.—are normally capable of dealing with these products, but when in the pregnant woman a breakdown in any one of these organs occurs, the whole mechanism is upset and a toxemic condition results. The toxic

material, passing through the kidneys, begins to irritate and injure them, the renal function fails and albuminuria appears. The failure of the kidneys to excrete the toxins leads to their accumulation in the body, and unless the normal condition is re-established serious consequences follow. In most women the defensive organs remain adequate throughout pregnancy. In many, some slight early disturbance is overcome as the organism readjusts itself to reproductive life. In others, however, the vicious circle once established continues until eclampsia or some other serious condition is the result; or the injury done the kidneys in a first pregnancy is increased in each subsequent one, until they become permanently damaged, and chronic Bright's disease is established.

Though the theory above outlined is perhaps the one most widely accepted as a working hypothesis, since it seems to fit most closely the clinical facts to be explained, there are as yet no clear proofs of its correctness.

Various investigators have attempted to prove for eclampsia a bacterial origin. The micro-organisms are supposed to exist in the uterine cavity and eclampsia to be preceded by the absorption of their toxin. Since the condition may arise after labor, the uterine wall, and not the fetus and placenta, is regarded as the site of bacterial growth. An attempt has been made to draw a parallel between septicemia and eclampsia, both being general intoxications, and the convulsions in the latter being due to the sudden absorption of large doses of poison, while the former is due to its slow continuous absorption. A recent writer also endeavors to compare these conditions to many abortions and premature labors, especially those which run a septic course, in which micro-organisms are latent in the decidua and renew their activity during pregnancy. It is noted that the uterine cavity is well drained except during the pregnant state. But so little material is available for bacterial examination in eclamptic patients that no single organism has been indicated as the causative agent, and the theory must long remain unproved.

A third and very interesting theory is that which ascribes eclampsia to thyroid inadequacy. The thyroid is enlarged during normal pregnancy, and a larger supply of iodothyron is needed in the pregnant than in the non-pregnant state. It is supposed that a deficiency of this secretion causes the metabolism of nitrogenous substances to stop short of the formation of urea and at a point where the products are highly toxic. The clinical features of a typical eclampsia resemble those of complete athyroidism, as caused by the complete removal of the thyroid in animals. And eclampsia is thus regarded as a

temporary athyroidia. A woman in the pre-eclamptic state is put to bed and fed on milk. Her demands for thyroid secretion are lessened, and nitrogenous metabolism becomes complete again. Meat diet or, on the other hand, increased physical exertion, would again disturb the balance. Eclampsia may also follow a meal of meat or excessive muscular effort, such as labor.

The relation of the kidneys to the thyroid may be that iodothylin is a diuretic, or that urea is the real diuretic, but depends for its formation on iodothylin, or that the latter is a powerful vasodilator and maintains the renal circulation, in antagonism to the suprarenal secretion. Bearing on this theory may be mentioned the experiment with a cat, whose thyroid was removed and who became pregnant three years later. When labor set in she became comatose and had convulsions. Five days later, with the intramuscular injection of thyroid extract, the convulsions ceased, labor advanced, and the following day a dead kitten was born. The cat recovered completely.

Lastly, the mechanical theory of the causation of eclampsia has been reiterated recently by Hersfeld, who, after making a large number of autopsies on eclamptics, ascribed it to the gradual compression of the ureters by the growing uterus, and considered Cesarean section as the indicated treatment for anuria occurring in a parturient woman with presumably dilated ureters.

Based on the toxemic theory, the treatment of pre-eclamptic symptoms, which may be easily diagnosed long before convulsions occur, is obviously of great importance. The well-known danger signals—vomiting, headache, nervous irritability and disturbances of vision, accompanied by decreased urine and urea, albuminuria and edema—are usually successfully met by rest in bed, milk diet, purgation, etc. An interesting addition to these commonly employed measures, suggested by Nicholson's thyroid theory, is the administration of thyroid extract, of which the value appears to be proved by his reported cases.

As to the advisability of obstetrical interference in the presence of convulsions opinions differ. But when dilatation of the cervix is already advanced, it seems agreed that labor should be completed artificially as quickly as may be done with gentleness. Hemorrhage is not to be checked. For the treatment of the convulsions preceding labor, the ground is more debatable. Some authorities cling to *accouchement forcé*, while others regard the shock of the operation too severe for a woman already so toxemic. They consider such treatment, if applicable to mild cases, at least improper for severe ones, since emptying the uterus cannot re-

move quickly a poison which has been accumulating for months. Cesarean section has been recommended and used instead of *accouchement forcé*, but the question of the advisability of ending pregnancy abruptly by any procedure at all must be decided before any single method can be preferred to some other.

Bleeding and the injection of salt solution seem to have an established position in our present treatment; and again, for the convulsions, it is interesting to note the recommendation, based on theory and in certain cases borne out by its practical success, to give large doses of thyroid extract, with the view, not of affecting metabolism, but of reducing blood pressure, of relaxing the renal arteries and re-establishing diuresis. *Veratrum viride* is widely employed, especially in this country, but its use has some strong opponents.

THE EPIDEMIC AT ITHACA.

MR. JAMES C. BAYLES, the well-known sanitary engineer, who was formerly president of the New York Health Department, has been making an investigation of the typhoid epidemic at Ithaca, and writes from there under the date of March 10 that the best data obtainable in regard to it are admittedly incomplete. They show, he says, that up to the end of the week previous there had been 755 cases of the disease in Ithaca since Jan. 10 of which the clinical history is obtainable. The number of unreported cases is a matter of estimate. In view of the fact that most physicians have neglected and that some have refused to make returns, and that in death certificates some of them persistently refrained from assigning causes likely to be recognized as typhoid complications, he expresses the opinion that the number of cases, light and grave, occurring since the epidemic began would be conservatively estimated at 1,000. It is impossible to learn the number of deaths or to calculate the percentage. The returns to the board of health have not been tabulated, and he has tried in vain to get the figures. "I do not know," he goes on to say, "how many cases there are at present in Ithaca, but I am constrained to estimate that there are not less than 250 cases of which no official record has been made. If told, as I have been, on very good authority, that the number was double this estimate, I should not find myself disposed to dispute it. A great many of these cases are of a kind popularly known as walking typhoid. . . . What potentialities of mischief in disseminating the infection reside in these neglected ambulant cases may be learned from the books."

Just a year ago conditions existed in Ithaca which

should have startled the community into instant and energetic measures of self-protection. There was then a local epidemic of a disease closely resembling a mild type of typhoid. Its statistics are incomplete and unsatisfactory, but it was very prevalent, and more than one hundred cases were treated. More than this, typhoid has been more or less prevalent for many years, and at no time has the town long been free from it. For at least ten years the cautionary signals have been obvious to any one who might have chosen to look for them. After a careful investigation, Mr. Bayles has failed to find any evidence in support of the theory which obtained credence in Ithaca and was accepted by the State Board of Health, that the water of one of the creeks supplying the town became polluted from a case or cases of typhoid among a colony of foreign laborers who were constructing a dam. That there are no cases of typhoid on the watershed or along tributary streams, he is not prepared to say or to believe. That the water company was negligent in the matter of the policing of its watershed and minimizing causes of possible pollution is not open to discussion—that it was exceptionally so does not appear. If other causes of danger were corrected, there need be no reckless precipitancy in dealing with the problem of the local water supply. However bad it may be, now or normally, it is the least of the dangers to which the people of Ithaca are exposed. During the coming summer work will be done which will insure the distribution of a water supply of attested and indisputable purity and potability. "But," he remarks, "those who believe that this will solve the problem of the sanitation of Ithaca are credulous indeed."

One in a position to observe without prejudice the conditions existing in the more densely populated neighborhoods of the town has good reason to feel in the highest degree apprehensive of what may be expected when warm days are here and especially when the flies become industrious. On the basis of such a sanitary administration as Ithaca has become habituated to and has deemed sufficient, it might very well be four or five years before typhoid fever ceased to be epidemic in Ithaca. This would be practically without reference to the quality of the water supply. Fortunately the direction of affairs has been assumed by Dr. George A. Soper, a competent, experienced and energetic man, who has been selected for this service by the State Board of Health. He has planned a sanitary campaign which the common council has ratified by giving the board of health *carte blanche* and a practically unlimited credit. The test will come when it is necessary to point out to well-to-do citizens the nuisances for which they are primarily,

and it may be solely, responsible, to interfere with vested wrongs sanctioned by immemorial usage, and to apply pressure to those reluctant to do on their own premises what they recognize should be required of their neighbors. Dr. Soper can, and, if properly seconded, will, make Ithaca clean and wholesome, and do it in the least possible time. Under date of March 13, Mr. Bayles states that the wisdom of the choice of Dr. Soper is to be seen in the remarkable work which he has already accomplished, and in the basis of confidence afforded that it will be quickly and completely successful. Four more deaths from typhoid among Cornell students, who had returned to their homes, have been reported in the last week.

LEAD POISONING AND PUBLIC WATER SUPPLIES.

BEFORE the general introduction of public water supplies in cities and towns, cases of lead poisoning were occasionally reported which were undoubtedly due to the action of certain well waters upon lead, where conditions existed which were favorable to such action.

One of the earliest American reports upon this subject is a report of a special committee appointed in 1842 by the city of Lowell, in which the committee noted with special emphasis "the readiness with which the Lowell ground waters dissolve lead in dangerous quantities, and warned the inhabitants of the city against the use of lead pipes for the conveyance of drinking waters."¹

Since the introduction of public water supplies, such cases have not been of common occurrence in towns supplied with surface waters, but among the inhabitants of certain cities and towns using ground-water supplies there has been an unusual number of reported cases, where conditions in the soil existed which were favorable to the action of the water upon lead. In some instances, as at Lowell, the introducing of a new supply was followed by an outbreak of lead poisoning. Here the drinking of unfiltered water of the Merrimac River was shown to have given rise to epidemics of typhoid fever, but this water had not been known to act unfavorably upon lead. A change having been made, and the water of driven wells substituted for the river water, the ground water of some of these wells was found to dissolve lead in dangerous quantities. Fifty cases were reported to the State Board of Health by the physicians of that city.² As many more were also reported at Kingston, Milford and Hopedale, Fairhaven and Milton, all among users of ground water

¹ Report of State Board of Health for 1898, p. xxxii.

² See Thirty-first Annual Report of State Board of Health (1899), p. xxxiv, 30.

supplies, and in many instances where comparatively new lead pipes were in use.

Studies of this important question show that the clear and practically colorless ground-water supplies, which most actively attack lead, are those containing the most carbonic acid and a small or medium amount of mineral matter.

In one or two instances a highly colored surface water was found to attack lead, if allowed to stand in the pipes for a considerable time, the lead being found both in solution and in suspension; since a coating of organic and mineral matter forms upon the pipes, carbonic acid is generated, which, together with the oxygen present, attacks the lead, and this deposit is, when the water is drawn quickly after hours of rest, apparently easily detached from the pipe and drawn out. Thus the amount of lead in water drawn after periods of rest is increased above that which is actually taken into solution by the water during this period of rest. This action of a highly colored water agrees with the recent investigations of the British government upon some of the peaty waters of England.

These facts show that the use of lead pipes for the conveyance of drinking water is attended with danger. If used at all, the standing water in the pipes should be allowed to run till all the water in the lead pipe has been drawn off, before taking water for drinking or cooking.

For several years the local government board of England has been engaged in making investigations upon the character of the moorland waters of Lancashire and Yorkshire. These waters are collected from watersheds in which there are large areas of peaty soil, and in some instances, as at Sheffield, have given rise to epidemics of lead poisoning. Twenty-three water supplies were investigated, the objects of the inquiry having been as follows: To determine,—

- (a) What are the seasonal modifications of each of such contributory waters;
- (b) In what way and to what degree they differ at one and another time from each other as regards their constituents;
- (c) How far diversity of their ability to dissolve lead is associated with seasons of the year, and is at the same time parallel to observed differences in their chemical and bacterial characters.

A careful survey was made of all the gathering grounds of the different water works in question, in order to ascertain the physical characters of the different drainage areas and the chemical quality of the various waters as regards their action, with respect to acidity, and their action on lead.

The results of this important investigation have just been published in a report made to the Local

Government Board by Dr. Houston.¹ The following portions of a condensed summary present the several conclusions embodied in the report:—

1. The history of epidemics of lead poisoning due to water supply, at all events in the north of England, clearly shows that the towns which have suffered in the past derived their water supply from moorland sources. In some cases we know that the water was acid, and in others there was every reason to infer that the water was in a similar condition, since the physical circumstances of the gathering ground were the same.

2. Moorland gathering grounds are usually rich in peat. The amount of peat varies greatly on different gathering grounds, both superficially and in depth.

3. Moist peat has been found to be invariably acid in reaction.

4. The water draining from peat is always acid. The amount of acidity depends chiefly on the amount of peat and the length of time the water has been in contact with it.

5. Acid peaty water dissolves lead.

6. The degree of plumbo-solvency of a water is chiefly governed by the amount of its acidity.

7. Moorland spring water is neutral, and often possessed of slight acid-neutralizing ability. In virtue of this property spring water is commonly capable of neutralizing a certain proportion of acid peaty water.

22. While the cause of plumbo-solvency is to be traced to the presence of acid in water, and the source of the acid to contact with peat, the antecedent cause of the acidity of moorland waters seems to be associated, at all events in part, with the presence of acid-producing bacteria in the peat itself.

23. Certain microbes isolated from peat possess the power of rendering by their growth a sterile neutral decoction made solely from peat both acid and possessed of plumbo-solvency.

24. Acid peaty waters have the power of dissolving not only bright lead but old coated lead, and the action is a very rapid one.

25. Neutral waters do not dissolve lead to any appreciable extent, but they sometimes act on *bright* lead by eating away the surface of the metal in the presence of dissolved oxygen ("erosion").

26. The power of "eroding" lead is an inherent property of water containing oxygen. All waters do not "erode" lead, because most of them contain substances which coat the bright surface of the metal and so prevent any further action taking place.

27. Some moorland waters are not only acid and possessed of plumbo-solvent ability, but "erode" lead as well. But in the absence of associated acidity and plumbo-solvency, ability to erode lead appears to be of secondary importance. Erosive ability *per se* is not to be regarded as an intrinsically dangerous quality of a water unless under special conditions and in the presence of bright lead.

28. Risk of a water acquiring plumbo-solvent ability may be guarded against by methods designed to exclude from the supply contributory waters which experience

¹ Papers on Lead Poisoning and Water Supplies, submitted by the medical officer of the Local Government Board.

Presented to both houses of Parliament by command of his Majesty. London, 1903.

has shown to be conspicuously and uniformly acid, and also by mechanical contrivances to prevent access to the supply of the "first-washings" of peaty soil after periods of drought.

29. Plumbo-solvent ability which has been acquired by water about to be sent to consumption may be removed by suitable arrangements for neutralization. It is of advantage to combine such arrangements for neutralization with sand filtration.

30. I would urge, as a practical outcome of this inquiry, that the circumstances of every supply of moorland origin should be considered with reference to the factors of plumbo-solvency which exist upon it; and in this report I have endeavored to make clear the nature of these factors and their relative importance. It is advisable in the case of existing works to test, not only in the reservoirs and main streams, but also in the tributary streams and subsidiary "feeders" during different seasons of the year, and under ordinary and extraordinary conditions of the rainfall, in order to arrive at a satisfactory conclusion as to the liability of the supply in general, and of its constituent waters, to acquire plumbo-solvent ability. Study of this sort affords the most satisfactory means of determining how best to apply the remedy, or combination of remedies, needed in the particular instance. In the case of proposed new water works, this inquiry indicates the necessity of a careful survey of the physical characters of the gathering grounds, as well as of ascertaining the proportion of spring water to surface water at different times of the year and under different conditions of rainfall, and of testing the quality of the spring water and its power of neutralizing acid, and the quality of the surface water, especially during wet weather and sudden storms following a period of drought.

MEDICAL NOTES.

PROFESSOR KOCH A MEMBER OF THE FRENCH ACADEMY OF SCIENCES. — According to the *British Medical Journal*, Professor Koch has been elected a Foreign Associate Member of the French Academy of Sciences in place of the late Professor Virchow.

SOCIETY OF TROPICAL MEDICINE. — A society for instruction in tropical medicine has been formed in Philadelphia, the object of which is to instruct physicians in the special diseases likely to be encountered in tropical countries. Many of the leading physicians of the city are interested in the movement.

A MEDICAL JOURNAL FOR SOUTH AFRICA. — It is reported that a medical journal with the title "South African Medical Record" is to be published at Cape-town, as a monthly.

PLAGUE. — The *Lancet* is authority for the statement that during the week ending Feb. 15 neither cases of, nor deaths from, plague occurred in Egypt. The last case occurred at Tant-el-Ghezireh on Feb. 6. As regards the Cape Colony, the medical officer of health of the colony stated that for the week ending Jan. 31 two cases of plague were discovered

at Port Elizabeth; namely, a native male who was admitted to the observation ward on Jan. 27, and who died from plague on the 29th, and a colored male who was admitted to the plague hospital on Jan. 31, and who died on the same date. One case remained under treatment at the plague hospital, Port Elizabeth, at the end of the week. No case of plague has occurred at any other place in the colony.

SMALLPOX IN SCOTLAND. — During the first two weeks in February only two cases of smallpox were reported in Scotland, and one of those was a sailor arriving from another port.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 18, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 18, scarlatina 28, typhoid fever 18, measles 34, smallpox 2.

BOSTON MORTALITY STATISTICS. — The total number of deaths for the week in Boston was 257 as against 255 the corresponding week last year, showing an increase of 2 deaths, and making the death-rate for the week 22.86. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 17 cases, 6 deaths; scarlatina, 34 cases, 1 death; typhoid fever, 5 cases, 2 deaths; measles, 18 cases, no deaths; tuberculosis, 34 cases, 30 deaths; smallpox, 1 case, no death. The deaths from pneumonia were 40, whooping cough 5, heart disease 29, bronchitis 9, marasmus 3. There were 8 deaths from violent causes. The number of children who died under one year was 46, under five years 68, persons over sixty years 68, deaths in public institutions 84.

A NEW ANTIVIVISECTION BILL. — Hearings have this week been held before a legislative committee at the State House in relation to the restriction of vivisection in Massachusetts. The hearings have been much less prolonged than heretofore.

NEW YORK.

DEATH OF COL. M. C. MURPHY. — Col. M. C. Murphy, president of the New York Board of Health from 1898 to 1901, died on March 5. His case was one of great medical and surgical interest. In 1890 gastrotomy was performed on him by Dr. R. F. Weir, on account of stricture of the esophagus, and ever since then alimentation had been maintained through a tube passed into the stomach through the abdominal wall. Colonel Murphy commanded the One Hundred and Seventieth New York Volunteers in the civil war.

THE VALUE OF A SKULL.—Through his complaints to the police of the teasing of his friends, it recently became known that a South Carolina negro, James Mandy, now living in the city, had made a contract for the sale of his skull to a member of the medical profession, who is much interested in craniology. The latter learned of the extraordinary thickness and hardness of this skull through the man's giving exhibitions of its quality in a dime museum. According to the terms of the agreement the physician is to pay Mandy \$500, in monthly installments of \$5. If Mandy dies before the entire sum is paid the skull goes to the physician for the amount paid up to that time, and if the physician dies before Mandy, it is to go, at the latter's death, to the Medical Society of the County of New York.

A CURE FOR MALARIA.—According to *The Journal of Tropical Medicine*, Dr. Dempwolff, who succeeded Professor Koch as head of the German expedition for the prevention of malaria in German New Guinea, states that he has discovered an aquatic insect which destroys the Anopheles mosquito. He proposes to cultivate these insects artificially, and by this means to exterminate the malaria mosquito.

A CENTENARIAN.—James Colston, a centenarian, died in Brooklyn, on March 3. He was born in London, England, in March, 1803.

A SPIRITUALISTIC ARGUMENT AGAINST LIQUOR.—One of the most novel and startling arguments against the habitual indulgence in alcoholic beverages that was probably ever adduced was that set forth in a recent address in Brooklyn before the New York State Spiritualists' Association. "If the men of to-day," said the speaker, "knew how many spirits (of departed toppers) hang around the corner saloons suffering tortures because they can't get a drink, they would be more careful in fostering the dangerous drink habit." How much practical deterrent effect the promulgation of this truly harrowing thought may have remains to be seen.

TYPHOID FEVER AT WEST SENECA.—Health Commissioner Lewis announced on March 11 that Dr. W. D. Green, health commissioner of Buffalo, and Dr. Edward Clark, his deputy, had consented to serve as representatives of the State Department of Health to co-operate with the local health officer for the suppression of an outbreak of typhoid fever which has occurred at West Seneca, and to take proper precautions for the protection of the water supply of Buffalo. There were some 170 known cases, which were stated to be confined to the foreign element among the employees of the Lackawanna Steel Company.

Miscellany.

THE ILL HEALTH OF HERBERT SPENCER.

DR. GEORGE M. GOULD, in *American Medicine* for March 7, 1903, contributes an article on "The Ill Health of Herbert Spencer." As in his "Biographical Clinics," he traces for this other distinguished man of letters the relationship between his ill health and ocular defects. For the biographical basis of his paper, he quotes from the article by Iles in the *World's Work*. Spencer was less of a sufferer than Carlyle, De Quincey and the others, owing to the systematic regulation of his habits of life and methods of work. He employed an amanuensis, and very largely dictated his writings, and frequently interrupted his hours of work for rest, exercise and recreation. His nervous troubles were of a functional nature, while his complaints about "queer" sensations in his head, after near use of his eyes, are evidence that he was straining them. His good health in old age, and his belief that "nervous troubles may be assuaged with advancing years," are only, Dr. Gould remarks, the philosophy of the presbyope who has not known the relief that comes to patients with eye strain, when the effort of accommodation has become impossible. Spencer did not overwork; on the contrary, he appreciated and advocated the value of rest and relaxation, but his ability "to read without glasses at the age of eighty-one" proves him to be and to have been a sufferer from compound myopic astigmatism. Insomnia and neurasthenia are often results of eye strain. Dr. Gould believes that properly adjusted glasses would have freed him from nervous troubles, and thereby made his life fuller, more satisfactory and more profitable.

RECOVERY WITHOUT TREATMENT FROM A MINIE BALL WOUND THROUGH THE STOMACH.

A CASE of peculiar interest from a surgical standpoint has recently come to light through the death of a veteran of the civil war. The man, who was in one of the volunteer regiments on the Federal side, was shot through the abdomen by a Minie ball in the second battle of Bull Run. He claimed to have lain for nine days on the battlefield without medical assistance, and afterwards to have been taken to a hospital in Washington, where he slowly recovered. He later re-entered the service.

In trying to obtain a pension on account of this wound, which later incapacitated him for work, he met with great difficulty, because of the natural incredulity of the authorities in the accuracy of his story, which the incompleteness of the hospital records failed to substantiate. It was not believed that he could have recovered and been capable of serving again as he claimed, if his own account of his injury were correct, and it was only a short time before his death that he received what would seem to be an adequate pension for so severe a wound.

His death recently has furnished an opportunity to verify his statements by postmortem examination, with the result that his case proves to be one of the most remarkable from a surgical standpoint

that occurred in the civil war. The autopsy was performed by Dr. Arthur W. Hopkins of West Swanzy, N. H., and Dr. A. R. Gleason of Keene, N. H. It was shown that the bullet entered the epigastrium one and one-half inches to the left of the median line, at the level of the lower border of the seventh rib. It penetrated both walls of the stomach and passed above the left kidney and pancreas, apparently without injury to either. It emerged a little to the left of the spine, where it lay beneath the skin, and, as the man frequently testified, was removed at the hospital in Washington, to which he was taken from the battle field. The scars left by the bullet in its passage through the body were clearly defined at the autopsy, leaving no doubt in the minds of the physicians as to the course it had taken. The immediate cause of the man's death was pulmonary hemorrhage, and his lungs were found much diseased.

It is probable that when the bullet was removed in Washington the surgeons concluded that it had in some way passed around and not through the body, since abdominal wounds caused by Minie balls in the civil war were almost uniformly fatal. Recovery in this case is due, almost without doubt, to the fact that the patient's stomach was probably nearly empty at the time when the bullet entered the abdomen, and that for nine days, according to his story, he lay on the battlefield without food and only with water given him by the rebels, who moved him to a sheltered spot and left him, as they supposed, to die.

Correspondence.

ATTENTION, HOUSE OFFICERS! SILENCE IS GOLDEN.

PADUNK, Feb. 14, 1903.

MR. EDITOR: I am impelled to write this note to you owing to two unpleasant experiences I have had recently in sending patients to one of the large hospitals of Boston, by the thoughtlessness of the house officer of that hospital. If you think it worth while, perhaps you will speak of it in your JOURNAL, that the matter may receive the attention of those in charge.

In one instance a patient who was suffering from acute appendicitis was seen by me in consultation. I advised his immediate removal to the hospital, which was done. He was operated upon and died. The house officer criticised the attending physicians who had sent the patient in to the relatives, saying that if that case had been sent in earlier he might have been saved. The man was sick three days, and it is obvious that I could not have advised his removal to hospital before I had seen him.

CASE 2. A patient was operated upon for septic finger, by amputation of the finger. I was called the second night after the operation for a severe secondary hemorrhage of the stump. I treated him as best I could and told him to go to the hospital the next morning, gave him a note to the hospital relating my experience, and suggested that he be kept until danger of secondary hemorrhage was over. He went to the hospital, and the assistant who dressed the wound laughed at my suggestions, sent the man home, and he promptly had another hemorrhage the next day.

I do not believe these criticisms by the young house officer or assistant are malicious, but simply thoughtlessness; they certainly are unpleasant to the attending physician, who often has no chance of meeting such animadversions.

Yours respectfully, . . .

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, MARCH 7, 1903.

CITIES.	Population Estimated, 1903.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Whooping cough.	Scarlet fever.	
New York . . .	3,785,156	1,479	416	19.53	32.51	2.84	.40	1.21	
Chicago . . .	1,885,000	595	163	23.85	21.84	1.84	1.34	1.00	
Philadelphia . . .	1,378,327	614	172	24.26	18.58	2.92	1.14	.98	
St. Louis . . .	618,481	—	—	—	—	—	—	—	
Baltimore . . .	533,712	203	50	30.29	19.80	.98	—	—	
Cleveland . . .	427,731	—	—	—	—	—	—	—	
Buffalo . . .	387,994	—	—	—	—	—	—	—	
Pittsburg . . .	351,745	153	62	25.00	23.69	1.97	6.59	—	
Cincinnati . . .	335,140	—	—	—	—	—	—	—	
Milwaukee . . .	315,307	—	—	—	—	—	—	—	
Washington . . .	295,108	—	—	—	—	—	—	—	
Providence . . .	191,230	101	28	25.74	33.67	1.38	2.97	—	
Boston . . .	603,163	241	64	16.18	25.81	1.66	2.49	.41	
Worcester . . .	132,044	50	12	16.00	18.00	—	—	—	
Fall River . . .	115,549	50	27	6.00	34.00	—	—	—	
Lowell . . .	101,959	40	15	17.50	22.50	5.00	—	—	
Cambridge . . .	98,639	32	9	28.12	18.75	8.12	9.37	3.12	
Lynn . . .	72,497	27	5	18.51	—	7.40	7.40	—	
Lawrence . . .	69,798	25	12	20.00	18.00	—	—	—	
Springfield . . .	69,339	87	12	24.31	18.21	—	10.80	2.70	
Somerville . . .	68,110	23	9	13.04	30.43	—	—	—	
New Bedford . . .	67,198	35	15	17.14	23.57	—	2.85	—	
Holyoke . . .	49,298	19	3	8.33	25.00	—	—	—	
Brookton . . .	44,873	10	3	30.00	—	—	—	—	
Haverhill . . .	42,104	11	4	18.18	36.36	—	18.18	—	
Newton . . .	37,794	15	5	—	—	—	—	—	
Salem . . .	36,878	9	8	11.11	22.22	—	—	—	
Malden . . .	36,286	14	6	14.28	14.28	7.14	—	—	
Chelsea . . .	35,878	8	4	25.00	—	—	25.00	—	
Fitchburg . . .	35,069	8	4	25.00	37.50	—	12.50	—	
Taunton . . .	33,656	14	—	42.84	35.70	—	—	—	
Everett . . .	28,620	2	1	—	—	—	—	—	
North Adams . . .	27,869	8	3	37.50	37.50	—	—	—	
Gloucester . . .	26,121	4	2	50.00	—	50.00	—	—	
Quincy . . .	26,043	3	1	—	—	—	—	—	
Waltham . . .	25,198	8	3	—	12.50	—	—	—	
Brookline . . .	22,608	7	2	14.30	28.60	—	—	14.30	
Pittsfield . . .	22,589	2	—	50.00	50.00	—	—	—	
Chicopee . . .	21,081	7	2	14.30	28.60	—	—	—	
Medford . . .	20,963	5	—	20.00	40.00	—	—	—	
Northampton . . .	19,888	6	1	—	—	—	—	—	
Beverly . . .	15,302	8	1	25.00	12.50	—	—	—	
Clinton . . .	15,161	3	—	—	33.33	—	—	—	
Leominster . . .	14,806	—	—	—	—	—	—	—	
Newburyport . . .	14,478	—	—	—	—	—	—	—	
Woburn . . .	14,300	2	—	50.00	—	—	—	—	
Hyde Park . . .	14,175	—	—	—	—	—	—	—	
Adams . . .	13,745	—	—	—	—	—	—	—	
Attleboro . . .	13,677	—	—	—	—	—	—	—	
Marlboro . . .	13,609	11	0	27.27	18.18	—	—	—	
Melrose . . .	13,600	—	—	—	—	—	—	—	
Westfield . . .	13,418	3	1	—	—	—	—	—	
Milford . . .	13,199	—	—	—	—	—	—	—	
Revere . . .	12,722	3	1	33.33	—	—	—	—	
Frammingham . . .	12,584	3	—	66.67	33.33	—	—	—	
Peabody . . .	12,179	—	—	—	—	—	—	—	
Gardner . . .	11,928	—	—	—	—	—	—	—	
Weymouth . . .	11,344	3	1	—	—	—	—	—	
Southbridge . . .	11,268	—	—	—	—	—	—	—	
Watertown . . .	11,077	3	1	33.33	33.33	—	—	—	
Plymouth . . .	10,730	—	—	—	—	—	—	—	

Deaths reported, 3,194; under five years of age, 1,121; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 823, acute lung diseases 851, consumption 423, scarlet fever 35, whooping cough 57, cerebrospinal meningitis 6, smallpox 8, erysipelas 8, measles 24, typhoid fever 47, diarrheal diseases 80, diphtheria and croup 87.

From whooping cough, New York 6, Chicago 8, Philadelphia 7, Pittsburg 10, Providence 3, Boston 6, Cambridge 3, Lynn 2, New Bedford 1, Springfield 4, Haverhill 2, Chelsea 2, and Fitchburg, Frammingham and Revere 1 each. From erysipelas, Chicago 2, Philadelphia 3, Pittsburg 1, Lowell 1, Marlboro 1. From smallpox, Chicago 4, Philadelphia 4.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,011, for the week ending Feb. 21, the death-rate was 16.7. Deaths reported, 4,841; acute diseases of the respiratory organs (London) 274, whooping cough 120, diphtheria 78, measles 94, smallpox 13, scarlet fever 49.

The death-rate ranged from 4.1 in Burton-on-Trent and Kings Norton to 24.1 in Great Yarmouth; London 17.6, West Ham 15.7, Brighton 18.7, Portsmouth 13.9, Southampton 15.2, Plymouth 11.2, Bristol 17.7, Birmingham 19.8, Leicester 14.7, Nottingham 15.9, Bolton 18.0, Manchester 19.9, Salford 21.0, Bradford 19.3, Leeds 16.3, Hull 15.9, New-Castle-on-Tyne 16.9, Cardiff 14.2, Rhondda 21.4, Liverpool 21.3.

METEOROLOGICAL RECORD.

For the week ending March 7, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S. .	30.96	86	48	26	78	56	67	S W	W	14	16	F.	C.	O.
M. .	30.42	83	41	23	89	60	71	S W	W	9	9	F.	C.	O.
T. .	30.67	83	34	29	84	75	80	N E	W	17	8	O.	O.	O.
W. .	30.42	49	58	83	86	54	70	S	N	9	8	O.	O.	O.
T. .	30.17	41	44	38	83	80	82	S W	2	9	9	O.	O.	.16
F. .	30.39	49	47	36	79	59	69	N W	N	14	9	C.	C.	.02
S. .	30.58	40	49	31	81	83	82	N W	S E	1	11	C.	O.	O.
30	30.37		45	81		74								.18

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. **30** Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MARCH 12, 1903.

THOMAS, A. R., passed assistant surgeon. Granted leave of absence for two months from Feb. 25. March 5, 1903.

KERR, J. W., assistant surgeon. Leave of absence granted by Department letter of Sept. 20, 1902, amended so that said leave shall be for one month and fifteen days. March 2, 1903.

FOSTER, A. D., assistant surgeon. Upon the return of medical officer in command, relieved from duty at Wilmington, N. C., and directed to proceed to Charleston, S. C., and assume command of the service, relieving Acting Assistant Surgeon F. F. Sams. March 6, 1903.

DEAN, L. C., acting assistant surgeon. Granted leave of absence for two days. March 9, 1903.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted leave of absence for one day. March 9, 1903.

PATRICK, W. E., acting assistant surgeon. Granted leave of absence for fourteen days from Feb. 27. March 10, 1903.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for three days. March 7, 1903.

ACHENBACH, J., pharmacist. Relieved from duty at Port Townsend Quarantine, Washington, and directed to proceed to Port Townsend, Washington, and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist E. F. Troxler. March 6, 1903.

THURSTON, E. J., pharmacist. To proceed to Gulf Quarantine and report to medical officer in command for duty. March 6, 1903.

WOODS, C. H., pharmacist. Granted leave of absence for twenty days from March 21. March 9, 1903.

DAVIS, H. E., pharmacist. Relieved from duty at Louisville, Ky., and directed to proceed to Memphis, Tenn., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist E. M. Holt. March 6, 1903.

TROXLER, R. F., pharmacist. Upon being relieved from duty at Port Townsend, Washington, to proceed to Port Townsend Quarantine and report to medical officer in command for duty. March 6, 1903.

HOLT, E. M., pharmacist. Upon being relieved from duty at Memphis, Tenn., directed to proceed to Louisville, Ky., and report to medical officer in command for duty and assignment to quarters. March 6, 1903.

PROMOTION.

Assistant Surgeon H. B. Parker commissioned as passed assistant surgeon, to rank as such from March 3, 1903.

RESIGNATION.

Passed Assistant Surgeon A. R. Thomas resigned, to take effect April 25, 1903.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING MARCH 14, 1903.

G. P. LUMSDEN, surgeon. Detached from the "Hancock" and ordered home to wait orders. March 9.

J. R. WAGGENER, medical director. Commissioned medical director from Jan. 20, 1903. March 10.

H. H. HAAS, passed assistant surgeon, and W. H. Bucher. Commissioned passed assistant surgeons from Jan. 10, 1903.

E. O. HUNTINGTON, J. B. DENNIS and E. THOMPSON, passed assistant surgeons. Commissioned passed assistant surgeons from Feb. 10, 1903.

B. H. DORSEY, assistant surgeon. Appointed assistant surgeon March 2, 1903.

I. N. HURD, pharmacist. Detached from the Navy Yard, Portsmouth, N. H., and ordered to Washington, D. C., for examination for retirement, and thence home to wait orders. March 11.

E. S. BOGERT, JR., surgeon. Detached from the Naval Recruiting Station, Buffalo, N. Y., and ordered home to wait orders. March 12.

P. F. MCMURDO, acting assistant surgeon. Ordered to the "Gloucester."

W. P. GROVE, passed assistant surgeon. Detached from duty with Marine Detachment, Culebra, P. R., and ordered to Naval Hospital, New York, for treatment.

SOCIETY NOTICES.

CAMBRIDGE MEDICAL IMPROVEMENT SOCIETY. — A meeting in memory of the late Dr. Morrill Wyman will be held at the Colonial Club, Quincy Street, Cambridge, on Monday evening, March 23, at 8 P.M. Dr. H. P. Walcott will deliver an address, after which remarks will be made by President Charles W. Elliot, Dr. David W. Cheever, Dr. J. T. G. Nichols, Dr. William T. Councilman and Dr. E. H. Fitz. All those interested are cordially invited to be present.

FRED R. JOUETT, M.D.,
Secretary.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — The society will hold a memorial meeting for the late Dr. John Homans at Sprague Hall, on Monday, March 30, at 8.15 P.M. Addresses will be made by Dr. Maurice H. Richardson, Dr. Arthur T. Cabot, Dr. George B. Shattuck, Dr. Edw. H. Bradford, Dr. Robert T. Edes, Dr. J. C. Warren, Dr. F. B. Harrington.

ARTHUR K. STONE,
Secretary.

543 Boylston Street.

RECENT DEATH.

DR. A. W. CHURCH of Waretown, N. J., died in St. Francis Hospital, Jersey City, on March 13, after an operation for appendicitis. He was thirty-three years of age and a graduate of the Edinburgh University and the Medical Department of Columbia University.

RESIGNATION.

DR. JAMES C. WHITE has resigned from the position of physician for diseases of the skin at the Massachusetts General Hospital.

APPOINTMENTS.

DR. JAMES C. WHITE, DR. WILLIAM L. RICHARDSON and DR. C. B. PORTER have been appointed on the consulting staff of the Massachusetts General Hospital.

DR. JAMES J. MINOT has been appointed visiting physician at the Massachusetts General Hospital.

BOOKS AND PAMPHLETS RECEIVED.

Proceedings of the American Medico-Psychological Association at the Fifty-eighth Annual Meeting held in Montreal, Quebec, June 17-20, 1902.

Diseases of the Stomach, a Textbook for Practitioners and Students. By Max Elnhorn, M.D. Third revised edition. Illustrated. New York: William Wood & Co. 1903.

Surgical Anatomy, a Treatise on Human Anatomy in its Application to the Practice of Medicine and Surgery. By John B. Deaver, M.D. In three volumes. Illustrated. Vol. III. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1903.

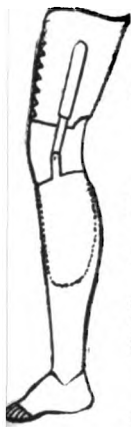
Surgery of Penetrating Wounds of Lungs and Heart. (Experimental.) By Benj. Merrill Ricketts, Ph.B., M.D., of Cincinnati, Ohio, 1903.

Ligation of Arteries (Cocaine Anesthesia). By Benj. Merrill Ricketts, Ph.B., M.D., of Cincinnati, Ohio. Reprint. 1902.

Surgical Melange. By Benj. Merrill Ricketts, Ph.B., M.D., of Cincinnati, Ohio. Reprint. 1902.

Nasal Surgery. (Illustrated.) By Benj. Merrill Ricketts, Ph.B., M.D., of Cincinnati, Ohio. Reprint. 1902.

Lung Surgery. Historical and Experimental. By Benj. Merrill Ricketts, Ph.B., M.D., of Cincinnati, Ohio. Reprint. 1903.



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The following are the Courses provided in the Graduate Department for 1902-1903.

No.	Subject.	Instructor.	Place.	Time.	Fee.
1	Anatomy of the Joints	Dr. Dwight	Medical School	Special *	\$25
2	Dissection Courses	Dr. J. Warren	Medical School	After Nov. 1	30
3	Special Anatom. Instruction	Dr. Dwight	Medical School	Special *	Special
4	Histology and Microscopy	Dr. F. T. Lewis	Medical School	Feb.	25
5	Elem. Human Embryology	Drs. Bremer and Woods	Medical School	Feb.—June	25
6	Advanced Embryology	Drs. Minot, Bremer, Lewis	Medical School	Feb.—June	75
7	Physiology	Dr. W. T. Porter	Medical School	Special *	Special
† 8	Toxicology and Medico-Legal Examination of Blood	Dr. Wood	Medical School	Oct.—Jan.	30
† 9	Clinical Examination of Urine	Drs. Wood and Emerson	Medical School	Oct.—Jan.	30
† 10	Clinical Haematology and Examination of Gastric Contents	Dr. Hewes	Medical School	Oct.—Jan.	30
† 11	Physiological Chemistry	Dr. Pfaff	Medical School	Special *	Special
12	Path. and Phys. Chemistry	Dr. Emerson	Med. Sch. or Boston City H.	Special *	Special
† 13	Bacteriology	Dr. Ernst	Medical School	Special *	25
14	Practical Pathology	Dr. Councilman	Medical School	Special *	26-40
15	Pathological Histology	Dr. Councilman	Medical School	Special *	30
16	Pathological Anatomy	Dr. Magrath	Medical School	Special *	25
17	Neuropathology	Dr. Taylor	Medical School	Special *	25
18	Advanced Neuropathology	Dr. Taylor	Medical School	Special *	75-125
19	Surgical Pathology	Dr. Nichols	Medical School	April	25
20	Diagnosis of New Growths	Dr. Whitney	Mass. General Hospital	Special *	15
† 21	Comparative Pathology	Dr. Smith	Bussey Institution	Oct.—June	Special
22	Clinical Medicine	Dr. Vickery	Mass. General Hospital	Oct.	15
† 23	Clinical Diagnosis	Dr. J. M. Jackson	Mass. General Hospital	Nov.—Feb.	15
† 24	Infectious Diseases	Dr. McCollom	Boston City Hospital	Oct., Nov.	25
† 25	Intubation	Dr. McCollom	Boston City Hospital	Special *	15
26	Sputum Analysis	Dr. W. H. Smith	Mass. General Hospital	Nov., Dec., Jan.	25
27	Clinical Medicine	Dr. Joslin	Boston City Hospital	April—May	25
28	Surgical Research			Special	Special
29	Special Surgical Work			Special	Special
30	Minor Surgery	Dr. Lund	Boston City Hospital	April—May	25
† 31	Minor Surgery	Dr. J. B. Blake	Boston City Hospital	Nov.—May	25
32	Clinical and Operative Surgery	Drs. Warren, Porter, Beach	Mass. General Hospital	Oct.—Feb.	25
33	Clinical Surgery	Dr. M. H. Richardson	Mass. General Hospital	Feb., May	25
34	Clinical Surgery	Dr. Mumford	Mass. General Hospital	Feb., March, April, May	25
35	Minor Surgery	Dr. Mumford	Mass. General Hospital	Oct.—Jan.	25
36	Clinical, Operative, Genito-urinary, Pathological and Minor Surgery	Drs. Monks and Thorndike	Boston City Hospital	Oct., Nov., Jan., Feb.	25
37	Clinical and Operative Surgery	Drs. Munro and Lund	Boston City Hospital	Oct., Nov.	25
38	Genito-Urinary Surgery	Dr. Thorndike	Boston City Hospital	Oct.—Nov.	25
39	Fractures	Dr. Scudder	Mass. General Hospital	Oct., Nov.	25
40	Surgical Diagnosis	Dr. Scudder	Mass. General Hospital	Nov.—Dec.	25
41	Genito-Urinary Surgery	Dr. Scudder	Mass. General Hospital	Jan.—Feb.	25
42	After Treatment	Dr. Scudder	Mass. General Hospital	Feb., March	25
43	Genito-Urinary Surgery	Dr. Watson	Boston City Hospital	April, May	25
44	Surgical Diagnosis	Dr. C. A. Porter	Mass. General Hospital	Oct.—Jan.	15
45	Minor Surgery	Dr. Balch	Mass. General Hospital	Feb., March	25
46	Minor Surgery	Dr. Balch	Mass. General Hospital	April, May	25
47	Clinical and Operative Surgery	Dr. Cobb	Mass. General Hospital	Oct.—Nov.	25
† 48	Orthopedic Surgery	Dr. Bradford	Children's Hospital	Nov.	15
49	Clinical Obstetrics	Dr. W. L. Richardson	Boston Lying-in Hospital	Nov.—Jan., May—June	25
50	Clinical Obstetrics	Dr. C. M. Green	Boston Lying-in Hospital	Feb., March, April	25
51	Clinical Obstetrics	Dr. Higgins	Boston Lying-in Hospital	Oct.	25
52	Clinical Obstetrics	Drs. Newell, Swain, and Friedman	Boston Lying-in Hospital	Oct.—May	25
53	Operative Obstetrics	Dr. C. M. Green	Medical School	Special *	25
54	Operative Obstetrics	Dr. Higgins	Medical School	Special	25
55	Gynecology	Dr. Haven	Boston City Hospital	Jan., Feb., March	25
56	Gynecology	Dr. C. M. Green	Boston City Hospital	Oct., Nov., Dec.	25
† 57	Gynecology	Dr. Storer	Carney Hospital	Oct., Nov., Dec., April, May, June	25
† 58	Gynecology	Dr. Storer	Boston Dispensary	Jan., Feb., March	25
59	Gynecology	Dr. Storer	St. Elizabeth's Hospital	April, May, June	25
60	Operative Gynecology	Dr. Davenport	Medical School	Special *	25
† 61	Pediatrics	Dr. Craigin	Children's Hospital	Oct., Nov.	25
† 62	Pediatrics	Dr. Craigin	Children's Hospital	Nov., Dec.	25
† 63	Pediatrics	Dr. Buckingham	Children's Hospital	Jan., Feb.	25
† 64	Pediatrics	Dr. Morse	Infants' Hospital	April, May	25
† 65	Pediatrics	Dr. Morse	Infants' Hospital	March, April	25
66	Dermatology	Dr. Bowen	Mass. General Hospital	Oct.—June	25
67	Syphilis	Dr. Post	Boston Dispensary	April, May, June	25
† 68	Advanced Neurology	Dr. Putnam	Mass. General Hospital	Special *	Special
† 69	Neurology	Dr. Knapp	Boston City Hospital	Feb., March	25
† 70	Neurology	Dr. Knapp	Boston City Hospital	April, May	25
71	Neurology	Dr. Walton	Mass. General Hospital	March—April	25
† 72	Psychiatry	Dr. Cowles	McLean Hospital	Special *	25
† 73	Otology	Dr. Crockett	Eye and Ear Infirmary	Feb.—April	25
† 74	Otology	Dr. Hammond	Eye and Ear Infirmary	Nov.—Jan.	25
† 75	Anatomy of the Ear	Dr. Hammond	Medical School	Special *	25
† 76	Clinical Ophthalmology	Dr. Wadsworth	Eye and Ear Infirmary	Feb., March	25
† 77	Ophthalmology	Dr. Standish	Eye and Ear Infirmary	April	25
78	Ophthalmology	Dr. Quackenboss	Eye and Ear Infirmary	Oct.—Nov.	25
† 79	Ophthalmology	Dr. Jack	Eye and Ear Infirmary	Oct.—Nov.	25
† 80	Rhinology and Laryngology	Dr. DeBlois	Boston City Hospital	Jan., Feb., March	25
† 81	Rhinology and Laryngology	Dr. Farlow	Boston City Hospital	April, May	25
† 82	Rhinology and Laryngology	Dr. Coolidge	Mass. General Hospital	Feb., March	25
† 83	Hygiene	Dr. Harrington	Medical School	Special *	25
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† Women admitted.

‡ Women admitted conditionally.

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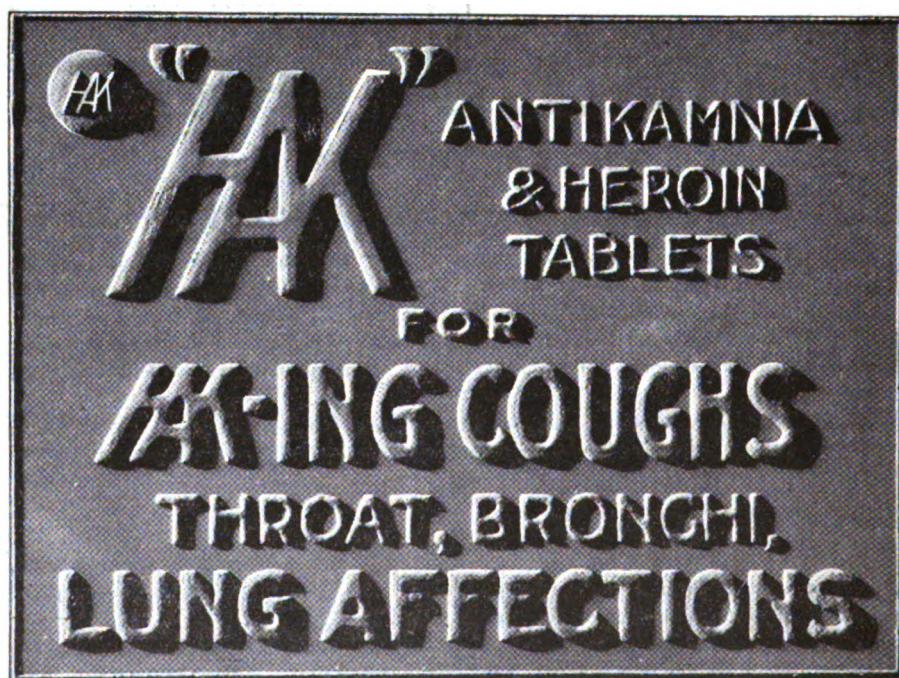
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Original Articles.

EXTENSIVE CAVITY FORMATION IN THE CENTRAL NERVOUS SYSTEM, PRESUMABLY DUE TO *BACILLUS AEROGENES CAPSULATUS*.

BY EMMA W. MOOERS, M.D., WAVERLEY, MASS.

From the Laboratory of the McLean Hospital.

THE so-called Gruyère cheese brain has been the subject of much speculation since 1870. There have been various theories⁹ of the nature of these cavities found in the brain.

The earliest theory was that the condition is due to dilatation of the perivascular lymph spaces; later that it is a distention of the network of the neuroglia due to lymph stasis; again to dilatation of the pericellular spaces of the neuroglia or to absorption of the nerve substance from pressure. The process has been spoken of as "cystiform degeneration," also quite widely to-day as "cyst formation."

The other pathological conditions known generally under the term *état criblé* could hardly now be mistaken for that produced by the gas bacilli. In genuine cyst formation there is a lining membrane and evidences of a chronic process. At the present time there is no reasonable doubt that the cavity formation is due to the production of gas in the brain substance by gas-forming bacteria.

Bacteria have been found in the brain substance in this condition by several observers, but in only three cases has the identity of these bacteria been clearly established. Two of these cases are reported by W. T. Howard, Jr.¹ In one of them he identified the bacteria as of the species known as the *Bacillus aerogenes capsulatus*. In a third case reported by Madison⁶ the *Bacillus aerogenes capsulatus* and other bacteria were found.

The *Bacillus aerogenes capsulatus*, as first shown by W. H. Welch,⁸ is characterized by its power of producing gas in the tissues of man and animals. It is the bacterial cause of the majority of the septic and putrefactive conditions accompanied by gas formation in the tissues. It is a common inhabitant of the intestine, and is probably widely distributed outside of the body.

The *Bacillus mucosus capsulatus* is found in certain forms of pneumonia and peritonitis and in various other inflammatory conditions. It is probably a normal inhabitant of the upper air passages. The strain of this bacillus found by Howard in one of his cases was shown by him to be an energetic gas producer, both in culture media and in the bodies of animals.

The following case, which occurred at the McLean Hospital, may here be briefly reported. For the sake of brevity we leave out all detail which has no bearing on the special features to which we wish to call attention.

The patient, a man forty-nine years of age, had advanced general paralysis, having been in the hospital for nine years. He was profoundly demented, with extensive paralytic evidences, and confined to bed. He was well nourished and weighed 168 pounds. The patient's condition continued unchanged until a few days before death, when an increased restlessness was noted. On the morning of the day he died there was discovered a marked abdominal distention, a temperature of 104° and respiration 48-58. He rapidly failed, and died in the evening.

AUTOPSY. The autopsy was made twenty hours after death; the weather was hot and the body, with ice over the abdomen, had been kept in a cool room.

Rigor mortis was present; the face and body appeared bloated, the abdomen greatly distended and the entire skin of a dark bluish hue. On section there was gaseous emphysema of the subcutaneous tissues in both thorax and abdomen, but none in the scalp, which was very dense and of unusual thickness. Gas escaped on opening the abdominal cavity. The stomach and intestines were greatly distended with gas, and showed red discoloration in places. The blood vessels were very prominent. The liver appeared spongy, pale and puffy, riddled with gas cavities; the spleen slightly so. In the kidneys and heart muscle no cavities were seen; but both showed gas cavities and bacilli on microscopical examination. The heart muscle appeared soft, and on microscopical examination the muscle fibers were much fragmented and the nuclei stained poorly. The kidneys showed in places slight increase of connective tissue. There was no pneumonia, no pleural nor peritoneal exudate. There were old adhesions at the base of the left lung. The stomach showed several small erosions.

The brain presented at the autopsy nothing but the usual condition found in advanced general paralysis; that is, marked atrophy, especially in the frontal lobes (weight of brain 1070 gm.), thickening of the pia. The vessels appeared unusually large. It was put into formalin *in toto* and found to float. The formalin was frequently changed. The cord showed unusual thickening of the pia arachnoid from the thoracic region down and a marked dark purplish-red discoloration of the membranes.

After the brain had been six days in formalin, frontal sections were made. The appearance of these sections was very striking. The whole of the cut surface showed many cavities (Figs 1 and 2); these varied in size from 3.5 cm. to the smallest visible to the naked eye; the shape varied, being usually oval but sometimes round; a few were slit-like. They were located in both white and gray matter. The portions which had maintained the greatest integrity were the gray matter of the cortex of both cerebral hemispheres and that of the cerebellum. The basal ganglia and brain stem (Fig. 2) were equally affected with the medullary portions of the brain. There was present a distinct pigmentation in certain portions of the brain; it was of a dark slate color and irregularly distributed, being seen outlining some of the convolutions (especially in the temporal lobes) just below a narrow line of unpigmented cortex. This color was also seen in the gray matter of the cerebellum and irregularly on the cut surface of the pons and medulla. The cord below the medulla did not show this pigmentation microscopically, but in the meninges was seen the same dark slate color uniformly distributed.

MICROSCOPICAL EXAMINATION OF SECTIONS. Specimens from the cortex were hardened in alcohol and stained by Nissl's method. Other pieces were hardened in formalin and stained by hematoxylin-eosin and by Gram's and various other methods. Specimens from heart and kidney were hardened in Zenker's fluid.

The cortex showed the usual changes of general paralysis, which it is not necessary to describe here.

Of some importance, however, is the fact that the nerve cells presented no postmortem alteration, but throughout, the typical changes found in fever, namely, the uniform pale staining of cell bodies without reference to the stainable or non-stainable substance; this pale staining makes the processes visible much farther than normal; the axis cylinders are frequently stained. The nucleus is large with well-marked nuclear membrane, with moderately distended nuclear network, with now and then sharply defined irregular granules in the vicinity but not connected with the nucleolus. There is no pronounced increase of satellite cells. Beside the fever alteration, many of the cells, both large and small, show a yellow pigment situated irregularly in the cell body; individual particles of the pigment are not well defined in the Nissl stain. In a hematoxylin stained preparation, however, the pigmentation is much darker, being brownish with discrete particles.

The cavities in the brain tissue were found on microscopical examination without a lining membrane; the walls were frequently smooth and clean cut, but there were many which looked slightly ragged in a part or the whole of the wall. The tissue around the cavities was composed of the brain substance itself; it showed no inflammatory reaction, though it often appeared compressed and took a slightly deeper stain; the nuclei were sometimes, but by no means always, paler in these zones. The larger cavities were empty or nearly so; somewhere along the edge of the walls of these were generally seen a few bacteria or an elongated mass of them; there were also found in some very fine shreds of tissue of the neighborhood, a blood vessel whole or ruptured and the contents of the latter. The smaller cavities almost invariably contained many bacilli, and in some was seen an amorphous substance containing sharply defined particles of dark pigment (iron reaction to this pigment negative). The cavities, while often showing some relation to a blood vessel, were seen also scattered through the tissue with apparently no relation to blood vessels or lymph spaces. Bacilli were found free in the brain tissue in clumps and singly, neither associated with blood vessels nor cavities.

Only one kind of bacteria appeared to be present (Fig. 3). These were bacilli of about the size and dimensions of the anthrax bacillus. They had round or nearly square ends, some of them stained somewhat irregularly, showing faintly stained areas in the protoplasm. In others were occasionally seen darkly stained granules. A clear halo could be plainly made out by partly shutting off the light, but no distinct capsules and no spores were seen; they were found in clumps, in short chains (rarely), in pairs and singly; the bacilli stained by Gram's method and by the ordinary aniline dyes. They are morphologically and in staining reaction identical with the *Bacillus aerogenes capsulatus* of Welch.

These bacilli, besides being found in the membranes, cavities and tissues, crowded in most places the small vessels so that often the blood corpuscles could not be seen. In the larger vessels they were also seen scattered through the contents and about their walls. Many bacilli were present in the choroid plexuses.

The other histological changes, namely, the altera-

tions in the vessel walls, the increase of cells and the presence of pigment granules in perivascular lymph spaces, the degeneration of myelin fibers in cortex and cord, the increase of neuroglia and the general disturbances of the normal architecture of the cortex,—all these are the changes commonly found in such an advanced case of general paralysis.

Spinal cord.—In the pigmented portions of the meninges, especially the pia arachnoid, the small dark particles of pigment observed in the brain were very numerous and sharply defined, being present in loose masses in the stroma, in the lymph spaces and within the vessel walls. The membranes contained enormous numbers of bacilli. There were well-marked cavities in the ventral fissure so that the adjacent structures were pushed aside (Fig. 4). There were a few very small cavities lying near clumps of bacilli, especially in the lateral columns of the cord; a few larger ones were found in the ventral horns; not all the blood vessels here contained bacilli, they were much more free from invasion than those in the brain. No bacilli were found in the central canal. The cavities were much fewer than in the brain.

In view of the large number of bacilli found in the brain and spinal cord of this case, and in view of the gas-producing powers possessed by the *Bacillus aerogenes capsulatus*, which we believe to be the bacterium concerned in this case, we agree with the view of other recent observers that the cavity formation in the brain and cord is due to the development of gas therein by the bacteria.

The question which, of course, arises in all such cases is this: Is this cavity formation in the central nervous system wholly a postmortem phenomenon? The absence of any reactive changes in the tissue and the absence of symptoms which would point to a sudden damage to the nervous system speak for this. But it must be admitted that the extreme paralytic dementia would have made such symptoms difficult to observe. Yet it is now well known that the *Bacillus aerogenes capsulatus* may invade the living organism, and Howard¹ and others¹⁰ have claimed that it may even cause acute purulent meningitis. Interesting in this connection is the case of Hartmann,³ in which the anatomical findings were those of extensive cavity formation in the central nervous system without any inflammatory or reactive process anywhere. In this case the clinical picture was very interesting. Some days before death there developed a most complicated group of both sensory and motor palsies with somnolence; there was distention of the abdomen, rapid respiration and elevated temperature. Nothing was found at autopsy or by histological examination which could account for the symptoms, except the presence of the gas bacillus in large numbers. Hartmann assumes that the cavities were formed post-mortem, but that the presence of the bacilli in the nervous system, partly by their mechanical, partly by their toxic actions, caused the extensive symptom-complex.

In the absence of any other demonstrated cause of death in our case, and in view of the rapid and extensive abdominal distention with great rise of temperature, it seems possible that the invasion of the circulating blood by the bacillus was the cause of death by the production of a toxemia.

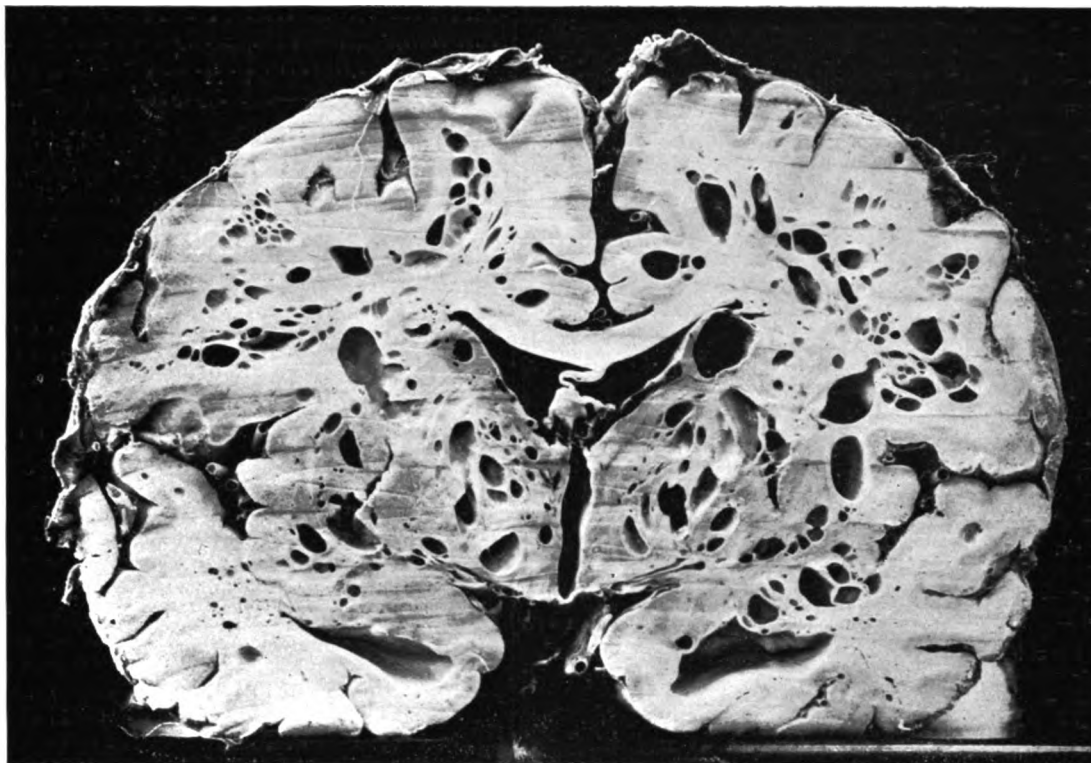


FIG. 1. — Frontal section through brain (in front of the crura), showing numerous gas cavities.

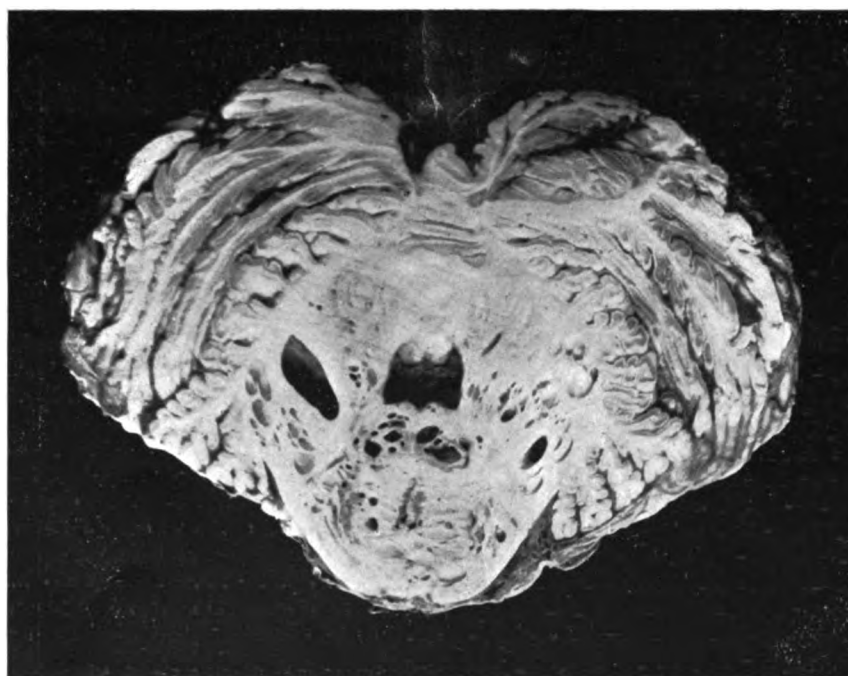


FIG. 2. — Section through pons and cerebellum, showing many cavities, especially in pons and white matter of cerebellum.

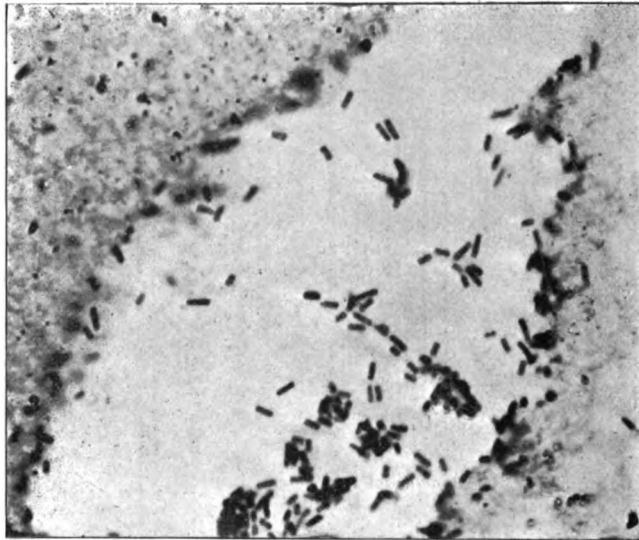


FIG. 3.—Section showing portion of one of the smaller cavities in brain. On the right, the wall; on the left, a portion of amorphous mass containing pigment granules and some bacteria; in center and wall, bacteria.

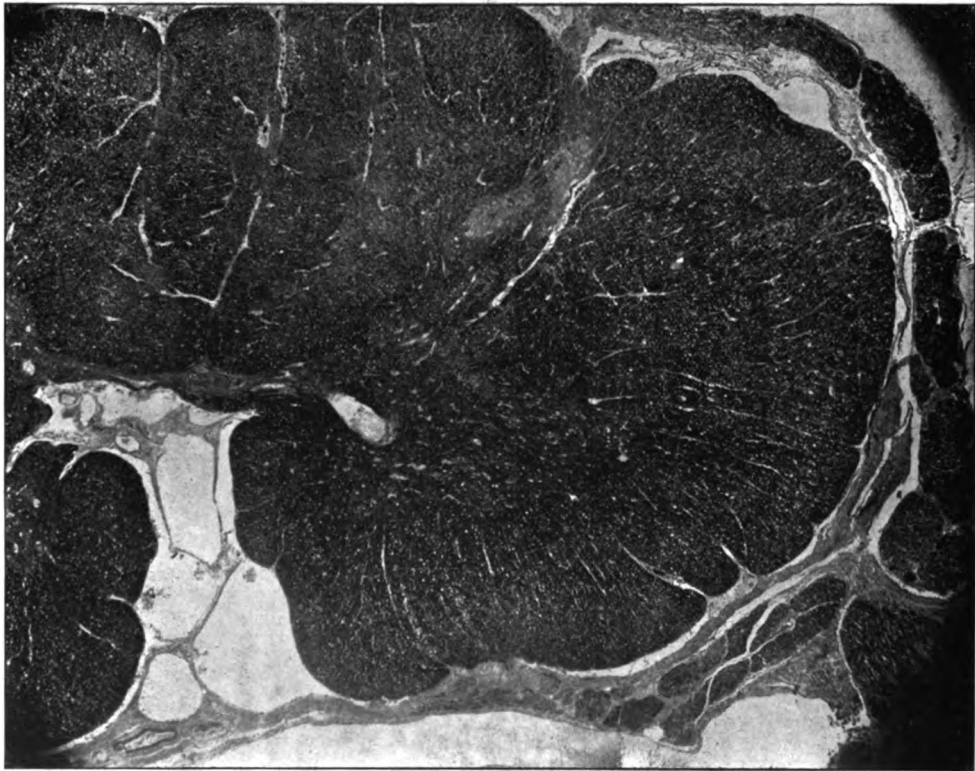


FIG. 4 — Section through cervical cord; large cavities in pia arachnoid, minute cavities in substance of cord.

BIBLIOGRAPHY OF CASES OF CAVITY FORMATION IN THE NERVOUS SYSTEM.

1. Howard, W. T., Jr.: *Johns Hopkins Hosp. Bull.*, 1899, vol. x, No. 97, p. 66; *Journ. of Exp. Med.*, 1900, vol. v, No. 2, p. 139; *Journ. of Med. Research*, 1901, vol. i, p. 106.
2. Keuling and Herring: *Johns Hopkins Hosp. Bull.*, 1899, vol. x, No. 97, p. 62.
3. Hartmann, F.: *Wiener klin. Woch.*, 1900, Nr. 42, p. 963.
4. v. Reusz, F.: *Pester med. chir. Presse*, 1901, xxxvii, Nr. 10, p. 218.
5. Siemerling: *Allg. Zeit. f. Psych.*, 1901, Bd. 58, p. 697.
6. MacIlson: *Amer. Med.*, 1902, vol. iii, p. 659.
7. Welch, Wm. H.: *Bull. of Johns Hopkins Hosp.*, 1900, vol. xi, No. 114, p. 185.
8. Welch and Nuttall: *Bull. of Johns Hopkins Hosp.*, 1899, vol. iii, No. 24, p. 81.
9. Cited by Howard in *Journ. of Med. Research*, 1901, N. S., vol. i, p. 115.
10. Hitschman and Lindenthal: Cited by Welch in *Bull. of Johns Hopkins Hosp.*, 1900, No. 114, p. 202.
11. Clarke, J. Lockhart: *Journ. of Ment. Sci.*, 1870, vol. xv, No. 72, p. 499.

BACILLUS SHIGA IN AN EPIDEMIC OF DIARRHEA.

BY LAWRENCE W. STRONG, M.D., WARREN, MASS.

FOR three summers a seaside community on the Maine coast has been disturbed by what were apparently epidemics of diarrhea, affecting both infants and adults, of varying degrees of severity, and beginning about the 1st of August in each year.

Often several members of one family were affected simultaneously or in succession, and only rarely was there anything obviously suspicious in the food which had been taken which might be regarded as a possible cause of the upset. The hygienic conditions of the village seemed well-nigh perfect. The water supply was a mountain lake situated about two miles from the village, two hundred feet above the sea level and from twenty-five to one hundred feet above the habitation levels, in depth averaging about one hundred feet, surrounded by forest, with but one house in its vicinity.

The milk supply was very largely taken from a milk farm on the shore of another lake, where the mountain lake water was used for the cattle and for domestic purposes. There was good pasturage in the meadows, the milk was cooled in ice immediately after milking, the stable and premises as well as the cattle and the attendants were as cleanly as the nature of the business allows. Bacterial counts of the milk made this year and last were comparatively low.

A new system of sewerage had been installed in 1901, whereby all waste was conducted in galvanized iron pipes to a cove at a distance from the village, and there discharged below low tide level. A few residences still discharged sewage into the harbor at tide level. Bangor and Boston markets furnished meats; vegetables were largely native grown, and consequently fresh. Climatic conditions were variable, there was a good deal of fog, as is characteristic of Maine, and this summer furnished an unusual amount of cold weather.

In analyzing this apparent epidemic it is not assumed that all the cases of diarrhea were of one form, even though an epidemic with a common cause may have occurred.

The common summer diarrheas are clinically separated into first, the simple diarrhea of nervous origin, or due to alterations in temperature, change in the food or other simple cause; second, the infective diarrheas, which are subdivided into fermented

diarrhea, cholera infantum and ileocolitis. This classification, while largely on the basis of symptomatology, takes a certain account of pathology and of etiology.

The simple diarrhea, which is non-bacterial, may, by increasing the susceptibility to invasion by micro-organisms, pass over into an infective diarrhea by allowing bacteria normally or accidentally present to invade the tissues. The infective diarrhea may be of the fermental type if the irritation acts high up in the alimentary tract, or it may produce an ileocolitis if the action of the bacteria or the absorption of toxic substances is delayed until the ileum or colon is reached. Thus a case may start as a simple diarrhea and end either as a fermental diarrhea or an ileocolitis. On this theory the same micro-organism, whether a normal inhabitant of the intestine or introduced with the food, might produce either a fermental diarrhea or an ileocolitis.

It is generally recognized that streptococci in the food, especially in milk, will produce diarrheas of the above types, and saprophytes also have been regarded as causative elements, but up to the present no definite relation has been found between any special form of bacteria and variety of diarrhea. Even if such a relation exists, it will hardly explain all the cases of infective diarrhea. As to the clinical classification of the cases actually encountered last summer, the majority were simple diarrheas of the non-infectious type. Then there occurred fairly numerous fermental diarrheas, the form which usually makes up 90% more or less of summer complaints, and what was most remarkable was a preponderance of ileocolitis, usually rather a rare condition. The greater number of these were rather insidious in onset, but developed in a day or two into a very obstinate and exhausting diarrhea, with numerous mucous and watery discharges, finally producing mucous casts of the intestine and bright red blood in specks and adherent to the mucus. Occasionally was seen a grayish or pink tinged slimy mass, apparently a slough from the intestine. In this form there was from the first a moderate continuous fever, from 100° to 103°, without morning or evening variations. Vomiting was common at the onset, but rarely persisted long. Tympanites and abdominal tenderness were common. The duration of these cases was variable, but the severer ones ran a course of one to several weeks.

Such cases as these, of which I had five under my own care, are the ones which suggest an epidemic, but in addition to these the mild cases were so prevalent that the inhabitant of this resort who escaped entirely was exceptional.

While the diarrheas were most prevalent and there was considerable excitement over the situation, Dr. Flexner visited the locality. Together with Dr. C. A. Herter and Dr. E. K. Dunham of New York an investigation was undertaken.

Cultures of the bacillus of dysentery isolated by Flexner from cases in the Philippines were obtained, and serum from one of my convalescent cases of ileocolitis gave a quick and marked clumping reaction with the bacillus. From the stools of another, most severe case, the same bacillus was isolated and identified. In this case injections of antitoxic horse serum prepared by Dr. Flexner from the bacillus of dysentery were used. This serum had been used

on animals with a protective effect and had been tested for ill effects on normal individuals, but had not been used therapeutically. Without stating any conclusions as to the use of the serum, the history of the case is given here for its bearing on the source of infection. The patient was a girl aged five, rather delicate and slender. For five days previous to her illness she had drunk nothing but boiled water on account of the suspicion cast upon the public water supply by the numerous cases of diarrhea. She drank no milk, but took a small quantity of milk on cereal food twice daily. The attack began rather insidiously and at first had the characteristics of a fermental diarrhea with severe vomiting and prostration, amounting to collapse on one or two occasions. Later bloody stools with mucous casts and rectal tenesmus set in. The child ultimately recovered after a most protracted illness. Further report of the case was made by Dr. Herter at a meeting of the Medical Association of New York City, when a paper by Dr. Flexner on the rôle of the bacillus of dysentery in the summer diarrheas of children was read.¹

As to the etiology, accepting Dr. Flexner's view, the bacillus Shiga is the causative agent for the case just cited, where it was isolated from the stools; in all probability also for the case which gave the serum reaction, and by analogy for the several other cases with a similar clinical picture.

Duval and Bassett isolated the same bacillus from the stools of forty-two cases of summer diarrhea in New York. The specific bacillus was not found in twenty-five healthy children, nor in children with simple diarrhea, marasmus or malnutrition, nor did the serum from the latter conditions agglutinate with the bacillus.

Duval and Bassett² do not state what type of summer diarrheas they investigated, whether fermental or ileocolitis, further than that they were bacterial and not simple.

As was stated above, the same organism may produce either a fermental diarrhea or an ileocolitis, according to the spot where the infected material lodges, but that this is invariably Shiga's organism can scarcely be maintained on account of the known rôle of the streptococcus.

Since it seems to be proved that Shiga's bacillus causes certain cases, the main question is, can we determine clinically which these cases are?

In all probability the serum reaction will afford the solution of this question, and in the absence of this we cannot venture conclusions as to this epidemic.

From a clinical standpoint there is nothing which separates the cases under consideration into groups or distinguishes those known or inferred to be caused by Shiga's bacillus from the others.

Only the cases of ileocolitis were tested for serum reaction, but ileocolitis is not enough to warrant the assumption that the bacillus Shiga is present, as the following case shows. A bell-boy, having eaten heartily of lobster à la Newberg, had a moderate diarrhea on the next day. This he aggravated by eating three bananas and drinking excessively of ice water. When seen at night time he had extreme rectal tenesmus, considerable mucus and

bright blood in the stools and marked prostration. No vomiting. Prompt recovery on symptomatic treatment. Here was evident food poisoning acting as a irritant in the lower bowel, with immediate recovery on removal of the cause, without the prolonged course characteristic of bacterial infection. Other cases of ileocolitis had an apparently simple beginning in a simple non-infectious diarrhea from improper food.

A girl aged four was taken on a picnic drive, and ate nut-cake and bananas. During the drive she vomited both bananas and nuts. The next day she was constipated, and the third day diarrhea set in, which did not become bloody for a day or two. The attack then went on to a most severe and obstinate dysentery, with a long course and a slow convalescence.

A boy of three, having eaten roast beef and spinach at noon, began to have movements at night containing undigested spinach. The following day he had six or eight movements containing undigested food. This diarrhea went on into a characteristic ileocolitis with mucous and bloody stools.

These cases suggest the possibility of the presence of Shiga's bacillus in the normal intestine, and that through the irritative action of a simple diarrhea from any slight cause or of a fermental diarrhea from infected food it overgrows the ordinary intestinal flora and sets up the inflammatory lesions of dysentery. Almost all the children's diarrheas, both ileocolitis and fermental, as well as several cases of acute gastritis, showed upon careful questioning some slight antecedent cause in the food sufficient to give the process a start, but once started there was no obvious reason why one should end as an acute gastritis and another as an ileocolitis.

Indeed, almost all the cases of ileocolitis had an origin in a gastric upset from improper food or in a fermental diarrhea, the facts speaking against the origin of ileocolitis as a primary condition, such as the invasion of a specific organism.

Although Duval and Bassett did not find the organism in the stools of healthy children, it cannot be assumed that it is not present there, being obscured by the colon bacillus. Shiga's organism appears to be a transition form between colon and typhoid, differing from them in its action on sugars, peptone and milk.

Shiga's organism forms no gas, forms acid on milk without coagulation but with a subsequent return of alkalinity. Shiga and Flexner report motility; Kruse and Duval do not. The formation of indol also appears to be somewhat in doubt.

Recent work has shown that this organism is viable in the soil even longer than the typhoid bacillus, and this suggests the means of distribution and production of epidemics.

Although definite conclusions are not justified from the fragmentary and inexact nature of the evidence afforded by these cases, the facts at least suggest that there must have been a common cause for a certain proportion of the unusual number of diarrheas encountered. Whatever the cause, it did not produce one characteristic form of diarrhea, although ileocolitis was conspicuous. The one positive bit of evidence afforded is that the bacillus Shiga was present in four cases of ileocolitis. If our clinical inference that some simple diarrheas

¹ Boston Med. and Surg. Journ., Nov. 27, 1902.

² Amer. Med., 1902, No. xi, 417.

passed into infectious diarrhea, and that the infectious diarrheas were either fermental or ileocolitis, according to the place of lodgment of the irritating matter, is correct, then the bacillus Shiga might be the common cause sought for.

The work of Duval and Bassett supports this view. This organism may have infected the soil of this locality from diarrheas occurring during previous summers. Its further transmission may be better studied here than in localities where the conditions are less simple. The water supply is almost unimpeachable, the only possibility of infecting it being from a farmhouse on its borders which is used as an inn. No case of diarrhea was reported from this house last year. Contamination of the water supply would not explain the case of ileocolitis in the child who drank boiled water exclusively previous to her attack, nor of a second child suffering from acute gastritis who drank Poland water exclusively. It seems much more likely that infection was spread by milk, since milk is more exposed to contamination and is an ideal *habitat* for bacterial growth. As was said, almost all the milk came from a single dairy within a mile of the village. Personal inspection showed careful handling and cleanliness, and bacterial counts of the milk on two occasions were low. Two severe cases of ileocolitis occurred in families using another milk supply.

Several positive facts, however, point to upsets from milk, although there is no known relation to bacillus Shiga. Two children aged twenty months and ten years respectively, sisters of the girl treated with antitoxin, were almost simultaneously attacked with vomiting. This occurred before the appearance of the epidemic of diarrheas. The younger child had eaten nothing but bread, butter and milk, the elder had a plain supper with milk. The third child, who ate the same food but drank no milk, was unaffected. The vomiting in both cases was intense, with prostration. These cases quickly recovered, the younger having diarrhea.

A boy of two and a half, who drinks Poland water exclusively, was attacked with vomiting, and retained nothing for twenty-four hours. The milk of the previous day was curdled when received. Recovery after calomel and saline. These cases prove nothing more than that milk, the chief food of infants, is very liable to cause upsets, and that this particular milk did cause such upsets. Many cases of diarrhea occurred in adults, who even if not milk drinkers used cream on food, and cream contains 90% of the bacteria of whole milk.

The insufficient evidence does not justify any conclusion as to the channel of infection, but there is more ground for suspecting the milk than any other source.

It is not necessary even to assume that the milk contained the bacillus Shiga when drunk, it is possible that the bacillus Shiga may be a normal inhabitant of the intestinal tract and that through some chemical or other peculiarity of the food it is enabled to overgrow its near relative, the bacillus coli communis, which usually is more florid in growth.

There may even be an analogy between the action of the colon and the bacillus Shiga on sugars and casein in the test tube and in the intestine. Since they are distinguishable only by their growth and

chemical changes on sugars, litmus milk and peptone, it may be these chemical differences which make the difference between normal digestion and a diarrhea.

A systematic search for Shiga's bacillus in the milk supplies of this locality is highly desirable. The stools and presumably the urine of all cases of infective diarrhea should be disinfected.

The locality considered here differs in no way from many others affected with epidemics of diarrheas or ileocolitis in the past. Last summer several other resorts suffered equally, although there was no connection between the places. The work of Duval and Bassett goes to show that summer diarrheas, common to every place, have a relation to the bacillus Shiga. Other work has demonstrated the wide spread of this organism in nature. Shiga's organism has generally been called the bacillus of dysentery. Duval and Bassett find it, however, in "summer diarrheas" without further specification. It was looked for in this epidemic only in certain cases of ileocolitis, meaning a diarrhea with bloody stools, rectal tenesmus and mucous casts. These may be properly called dysentery, but there was nothing in cause, onset nor clinical history to separate them from other summer diarrheas. The scope of Shiga's bacillus is not determined, it seems wider than dysentery, but not so wide as to include all infective diarrheas.

It is to be hoped that this report, far from deterring people from going to a favorite summer resort, will point out that all places are equally liable to experience such epidemics, and that this place, being better investigated, is better protected.

SYSTEMIC INFECTION DUE TO NATURAL TEETH CONDITIONS.¹

BY D. D. SMITH, M.D., PHILADELPHIA, PA.

THERE are in the human mouth today, as has been the condition through all the centuries, malignant factors of general infection, and causes of disease wholly unperceived and neglected, and thus the oral cavity has ever been and still remains a prolific source of contagion.

Medical science, and its allies, ancient and modern, virtually limiting study of the mouth, as an index to general systemic conditions, to the tongue, and naturally looking for ultimate causes of disease to inimical foods and drinks, or methods of ingestion; to so-called "malaria," to mental and physical overwork; to adverse locality, microbial atmosphere, morbid conditions of stomach, kidneys and lungs, has failed to apprehend or recognize agencies of infection, obvious, prolific and virulent, in the very vestibule of human life.

Dentistry, engrossed with its mechanics and mechanism, devoting its energies largely to repair of the teeth, has discovered nothing of the serious consequences of mouth infection upon general conditions; with magnifying glass and explorer searching for cavities of decay as its ultimate end, it has failed to discover the most important connections of the teeth in their relations to the general system.

¹ Read by invitation at the meeting of the Philadelphia County Medical Society, Jan. 28, 1908.

Hypothetical as these enunciations may at first appear, they will be found in the light of full scientific investigation completely verified.

The statement that all erupted or exposed tooth-surface, in its natural state, is bacterially infected surface, is incontrovertible. And when it is considered that in the normal mouth from eight to twenty years of age and later there are twenty to thirty square inches of such surface, the momentous import of these conditions becomes at once apparent.

To conceive of the oral cavity as the "vestibule of human life" is a simile not inappropriate, for it is at this entrance that all systemic stores, commissary supplies, fuels, etc., for nutrition, are received and tested on their way to the stomach, — the chief chemical laboratory and distributing center of the general system. And not only this — it is here that the various foods, solids and liquids, incorporate with the oral secretions piped into the mouth from special glands, and the mass is subjected to a process of maceration in preparation for deglutition. Engaged with these and other indispensable offices, the oral cavity is never wholly out of service, and literally, it may be said, it is never really cleansed. It is here that solid particles from the breath, saliva, food-remains and other débris constantly deposit and accumulate; becoming cemented to the teeth chiefly through inspissation of the viscid mucus perpetually oozing from many irregular glands beneath the mucous surface. Greatly augmenting the infection from this cavity, the air commonly diverted through it, especially in mouth breathers and in sleep, becomes a purveyor of toxic emanations to the lungs, where it inevitably deposits its contagion in lung tissue or the blood. Necessarily the subject of such conditions, this vestibular cavity with its twenty to thirty square inches of dentate surface becomes quickly infested and infected with all manner of bacterial formations, decomposing food particles, stagnant, inspissated, septic matter from saliva, mucus and sputum; not infrequently with pus-exudation from irritated and inflamed gum margins; gaseous emanations from decaying teeth and putrescent pulp tissue; salivary calculus (tartar), nicotine and the chemical toxins which result from decomposition due to mingling of mouth secretions, excretions and food-remains in a temperature constantly maintained at the high normal of 98° F. In this is presented a true picture of the innumerable sources of infection inseparably connected with untreated teeth. Incredible as it may appear, these conditions obtain, not in the lower classes alone, but in general mouth conditions in high and low born, fastidious and boor, king and peasant.

Respecting the state of the breath in ordinary expiration, Hermann Köninger, in the *Journal of Hygiene and Infectious Diseases*, summarizes some original experiments as follows:

"The author has been able to assure himself that in an apartment where there is no appreciable current of air, a person coughing or sneezing could scatter germs to a distance of more than 7 meters (22 feet). Germs are scattered through the air by means of salivary droplets. These droplets are really microscopic balloons, having a bubble of air in the center, and remain in suspension but a short time. The dissemination of droplets with their germ-originating capabilities and tendencies is most

marked during coughing and sneezing. The more pathogenic microbes the mouth contains, the greater the danger of infection. Washing the mouth has the effect of decreasing the diphtheria and other bacilli susceptible of being detached. Placing the hand or a handkerchief over the mouth prevents the emission of droplets charged with bacilli. During a surgical operation no one present should speak. Measures may be multiplied indefinitely for prevention in connection with this important idea of scattering infected droplets in the breath."

Thus it is manifest that with past and present conditions of mouth and teeth, infection in the oral cavity is a common heritage, and that none under the existing régime can wholly escape its evil consequences. A gleam of recognition of this fact is found in the *Lancet* of Nov. 15, 1902. The editor says:

"The alarming increase of dental disease is beginning to attract the attention of the general public, while there are also signs that the medical profession is becoming more alive to the possibilities of dental disorders being important factors in the production of certain general diseases. Dental caries is the most prevalent disease of the human race. There is little doubt that a large number of children suffer from impoverished nutrition solely from neglected conditions of the mouth."

Experience has shown that it is not only possible but entirely practicable, through intelligent "prophylaxis treatment," to successfully combat caries in children, and at the same time to keep the mouth in a good state of asepsis. An important auxiliary benefit from this treatment is found in its educating the child to intelligent self-care of the mouth, and in the relief it affords from the terrible dread and fear of the operations of dentistry, a present serious obstacle to proper professional care in all cases.

Recognition of this by physicians, to whose care children are naturally committed, and corresponding advice from them to parents or guardians, would result in incalculable benefit to the teeth and not less to the general health of childhood. The suggestion frequently seen, that the dental profession can or should assume to control the diet of infants and children for the production of good teeth, is an absurdity. If the dental or medical pediatricist had the power he would do well to give to every mother and every child a plentiful supply of healthful foods, — cereals, vegetables, fruits, nuts and meats, — and thus, and thus only, through dietetic means lay the foundations for good teeth. No special foods or special methods of feeding will accomplish this end. Foods that make good bone, muscle, nerve and other tissue, will likewise make good teeth.

If by "dental disorders" the *Lancet* means dental caries, which it styles "the most prevalent disease of the human race," it may be confidently questioned whether dental caries alone should be regarded "an important factor in the production of certain general diseases." Pyorrhea alveolaris (formerly styled Riggs' disease), an inflammatory condition of gum margins, pericementum, cementum and alveolar process, resulting in pus formation, and wholly dependent on the presence of natural teeth in the mouth, is unquestionably productive of some general diseases.

My observations lead to the confident belief that the kidneys are the organs affected by the products

of this particular pyemic condition. An error quite generally accepted for fact, is the belief that pyorrhea alveolaris results from uremic poisoning. While uremia and pyorrhea may be and often are associated, the presence of urea in the blood is not a cause of alveolar pyorrhea; but the converse of this proposition is a true pathological condition. Uremia is a usual result of alveolar pyorrhea, due to the perpetual ingestion of mouth toxins—pus and other effete products—which are constantly and inevitably taken into the stomach from this inflammatory condition *in the mouth*. Alveolar pyorrhea is never of systemic origin: it is wholly local and caused by the stagnant septic accumulations *on the teeth*. These accumulations induce inflammation of the tissues at the gum margins about the affected teeth, and as the inflammatory products increase, the gums, pericementum and alveolar tissue become involved and withdrawn more and more from portions of the roots, forming pockets which constantly increase the infection and hasten loosening of the teeth. Pyorrhea is readily amenable to intelligent treatment, when treatment is instituted before destruction of tissues has progressed to hopeless loosening of the teeth. An edentulous (toothless) mouth is never the subject of pyorrhea; and whenever the disease has developed, extraction of such affected teeth always results in speedy and complete cure. In this is clearly manifest the verity of the local origin of this disease. "The increasing prevalence of dental caries" surely cannot justly be held alone responsible as the cause of systemic disease; it is a factor, but only in so far as it contributes to general mouth infection.

To return again to the *Lancet*, if my interpretation of the article referred to is correct it would imply that "children suffer from impoverished nutrition" because of caries and inability to masticate food; this presentation should be received with caution. The facts are that with modern culinary methods neither perfect tooth mastication nor mouth insalivation are indispensable parts of the digestive process. True it is that free and comfortable mastication contributes greatly to the pleasures of taste and ingestion, and to that extent favors stomach digestion, but it is an office which can be delegated, as is often done, not only without injury but also with decided benefit. For the maceration of foods in the mouth, water and other customary drinks may be substituted for saliva without appreciable detriment; in many mouth conditions with advantage for the stomach. That saliva in the initial stages of digestion converts starch into sugar might have been a matter of more consideration before sugar entered so largely into foods and drinks as at present. Now, with a constant over-supply of saccharines, saliva, frequently vitiated and infected as it is poured into the mouth a direct secretion by the salivary glands, might in many mouth conditions give place to water in some form with advantage. We may regard water not simply as a food adjuvant and a diluent to the circulation, but as an integral part of nutrition; as necessary to digestion as to tissue replacement and to the maintenance of life. In this connection it seems reasonable to predict that the student of dietetics must soon broaden his field from the consideration of foods in their analytical ultimates, to embrace other and per-

haps more important matters in connection with their structural compounds. The demands of tissue building are such that we seem compelled to accept the fact that the real value of typical foods is dependent not so much on their ultimate chemical elements as on the value of the substance in its entirety, before the breaking up of the aqueous, vitalized compound-cells. Whilst fully aware that this may seem in conflict with the accepted physiology of digestion, it is a theory which is found to be in accord with everyday clinical experience and with conditions yet to be considered. The indifference of the stomach to mouth mastication and insalivation is clearly expressed in numberless cases of edentulous mouths; in these the processes of digestion and assimilation go forward regardless of tooth mastication, and with no apparent obstruction or derangement; and the remaining oral tissues in all cases will be found in perfect condition of health. It will yet be demonstrated that the real cause of general disease emanating from mouth and teeth is due neither to dental caries nor disability of mastication, but to constant and perpetual infection through septic matter in foods and drinks and the inhalation of toxic emanations from the persistent and abiding infection in mouths containing natural teeth.

"When does mouth infection due to the teeth begin?" It begins with the eruption of the deciduous set and continues with increasing gravity through the period of shedding the temporary and erupting the permanent ones, and thence on so long as the natural teeth are retained in the mouth; the most critical time being that of childhood and early youth, a period in which the mouth, under the present régime, is wholly without intelligent care. Children's mouths are frequently veritable crucibles in which are generated chemical agents and compounds, highly detrimental to the teeth themselves and not less to the general health of the child. Vitiated salivary and mucous secretions, bacterial plaques upon the teeth, decay, retained food-particles and saccharines; breaths loaded with emanations from stagnant septic matter, all at a maintained temperature of 98° F., insinuate into the circulation a constantly increasing infection, to find expression later in life in diverse pathological conditions, often in chronic and fatal disorders. It may appear, as it commonly does, in stomach or kidneys; in lungs or nervous system; in heart, brain or skin; in any organ or tissue to which mouth toxins are directly or indirectly conveyed.

In an endeavor to limit contagion, medical interposition very properly condemns expectoration in public conveyances, on floors, sidewalks and in all frequented places. Beards, kissing and even the shaking of hands, are under condemnation of the scientist.

The fact is that every mouth with teeth in natural *untreated* state is inevitably breathing out dangerous, infected droplets; contention, therefore, over the surgeon's beard or any other seems puerile. (Better if increased to a perfect mouth mask.) If discussion of it shall disclose the true source of beard infection, namely, septic mouth conditions, and emphasize the special dangers attending amphitheater and all surgical operations, through droplet infection, it will accomplish great good. We are now face to face

with the query, "Are these untoward mouth conditions remediable or must they endure?" The toxins engendered amidst stagnant accumulations perpetually adherent in the mouths of consumptives as well as the sputum itself in appreciable quantity clings to the already infected tooth surfaces, increasing bacterial plaques and multiplying bacterial cultures *in the mouth*. Can it otherwise be, then, that thus an endless chain of ever-increasing contagion revolves in foods and air to blood, thence to organs and tissues; to be deposited it may be as initial infection or perhaps in augmentation of some pathological state already established; or it may return to mouth in mucus or saliva; or in some inflammatory exudation, there to begin again its round of infection.

In 1894 I began a line of experimental investigation to determine the true source of tooth decay. Results from these experiments, carried forward on patients only, were all in harmony with the theory that caries of the teeth begins at some point on the exposed enamel surface, and that it is primarily due to affinities of the ultimates of the teeth for acids of the menstruum in which the tooth is perpetually enveloped. What seems indisputable proof of this theory is the fact that if a devitalized or pulpless tooth, such a tooth as is conceded to be the subject of more rapid decay than one with a vital pulp in the same environment, be removed from a mouth in which resolution is rapidly taking place, and if it be placed in water, alcohol or glycerine, or simply exposed in the air, all caries in that tooth is at once arrested.

The inevitable deduction from such an experiment is, that caries of the teeth is a result of environmental conditions, and this is in agreement with general observation and all clinical experience. Growing out of the experiments referred to, and their results, I have developed a system of caring for the teeth diametrically the opposite of all former conceptions, theories and methods of practice; and whenever the system has found typical exemplification, whether in childhood, youth, middle life or old age, most favorable and satisfactory results have universally followed.

The treatment consists of enforced, radical and frequent change of environment for the teeth, and perfect sanitation of all mouth conditions. Experience having demonstrated that the most careful and painstaking are unable with the agents commonly employed, as the toothbrush and dentifrice, toothpick and dental floss, soaps, so-called germicidal-washes, or other agencies, to effect this end, the plan of forcible, frequently renewed sanitation, by an experienced operator, has been instituted with results as stated. In detail, the process consists of most careful and complete removal of all concretions, all calcic deposits, semisolids, bacterial plaques and inspissated secretions and excretions which gather on the surfaces of the teeth, between them or at the gum margins; and this to be followed by thorough polishing of all tooth surfaces *by hand methods* (power polishers should never be used); not alone the more exposed labial and buccal surfaces, but the lingual, palatal and proximal surfaces as well, using for this purpose orange wood points in suitable holders, charged with finely ground pumice-stone as a polishing material. Treated in this

manner the teeth are placed in the most favorable condition to prevent and repel septic accumulations and deposits, and not less to favor all efforts of the patient in the direction of sanitation and cleanliness.

In every instance in which this treatment has been instituted for the deciduous teeth, and in many cases of adults, there has been immunity from decay, and the teeth have shown a marked change in structural composition. Alveolar development in children also has been apparently stimulated and increased, to meet requirements of the erupting teeth. The extreme and unnatural sensitiveness of the gums, attended with purple color, congestion and tendency to bleed, has in every instance been fully overcome, and there has been quick return to the normal condition of low grade sensibility, to the natural pink tint of the gums with their typical striations and beautiful festoons. It is also apparent that the tissues of the teeth themselves—especially the dentine and enamel—probably through stimulation of the vital forces of the pulp by this treatment, begin a surprising change for the better; a change which is first and specially noted in improved color and general appearance. Dull, opaque tooth substance often loaded with an offensive "old-ivory" pigment, is transformed into clear, translucent tooth tissue; the teeth assuming the appearance of living organs with an impressive individuality.

For seven years the revelations and the benefits of this treatment, hitherto unknown, have been to me a constant source of surprise and delight, and with ever-increasing emphasis it is demonstrating the necessity for this thorough and frequent change of environment for all teeth and all oral conditions.

To arrest or to prevent inflammatory process in the mouth is to arrest and prevent resorption of pus exudations and other effete products of mouth inflammations, which of necessity are carried directly into the digestive tract. The one and only method of prevention and relief from this source of infection is, as stated, forcible, complete and frequent removal of the stagnant irritants and toxics which perpetually recur on and between the teeth and about the gum margins. Maintained at intervals of about a month, this treatment is followed by immediate lessening and ultimate arrest of all inflammations and all inflammatory exudations from the oral tissues and complete eradication of the stagnant accumulations otherwise perpetually on and about the teeth. Another important beneficial result of this treatment is seen in the unloading of the breath of its malodors and consequently of its often malignant infection. Clinical experience adds its testimony in substantiation of all this. Of the whole number of cases under this monthly "prophylaxis treatment" all have shown some phase or state of general health improvement.

The most common condition—malaise—expressed in an indifferent appetite, coated tongue and sallow skin, has in every instance, in from three to four months, given place to clearing of the tongue and skin, better assimilation of food, and apparent increase of vitality.

Next in point of numbers are cases of so-called "nervousness," in both men and women—several in a condition approaching "nervous prostration." The rapid improvement and recovery in these cases has been a matter of astonishment and gratification.

inflammatory conditions of throat, some of long standing, and attended with tonsilitis, using topical applications only in addition to the "prophylaxis treatment," have in every case shown marked improvement; some have been cured and all others are improving under treatment.

One case of chronic nervous dyspepsia, in an inveterate smoker, complicated with violent paroxysms of acute stomatitis, in which the "prophylaxis treatment" was employed, resulted, after eighteen months, in complete restoration of mouth tissues, cure of the dyspepsia and return to full general health conditions.

In two notable cases of alveolar pyorrhea in men, in one of which a diagnosis of diabetes had been made, the "prophylaxis treatment" was instituted at intervals of two and three days for about three weeks, when the time was gradually extended to one treatment a week; and from that to one in two weeks, until at the expiration of three months there was a treatment every third week; topical remedies were mainly used. Both of these cases made a complete recovery both as to pyorrhea and general mouth conditions and the restoration of the general health.

In a case of long-standing tonsilitis, complicated with chronic inflammation of the upper pharynx, the uvula and the half arches, in six months under the "prophylaxis treatment," with topical applications to the affected surfaces, the patient was benefited to such degree as to warrant a most favorable prognosis.

Other and varied interesting conditions and cases which it is deemed unnecessary to introduce here have been greatly benefited by this "prophylaxis treatment."

It is a matter to be recognized that relief from mouth infection is to be afforded through dentistry alone. Germicides will not, they cannot accomplish it. There must be positive and frequent eradication of all septic conditions of the teeth, and all environmental conditions favoring toxic stagnation and germ culture in the mouth; and the after maintenance of the most perfect state of asepsis for the entire oral cavity.

It may seem difficult to realize, but it is nevertheless true, that no greater good could come to humanity through the medical profession than the full recognition of the dangers from this insidious, prolific and virulent infection in the human mouth.

The undisputed possessions of dentistry include the very gateway to the human system, with all the important offices attaching to it; and yet the profession has so circumscribed and limited its field of operations that it has to do chiefly with the one disease, caries in the crowns of teeth; and he that can the more adroitly deal with this condition is generally the most lauded. The limitations, feeble conceptions and the errors of writers and teachers have given the general public, and the great majority of the medical profession also, the impression that dentistry is what its schools have unwittingly made it, — first and mainly, the filling of a decayed tooth. Its want of standing with the community is such that in every conflict the medical opinion supersedes the dental. There is practically no finality in a dental diagnosis or decision.

The discoveries resulting from the "oral prophylaxis treatment" present the opportunity for greatly

extending the benefits of dental science and dental service, and for making the dental profession a branch of the healing art in reality; and this, in its own legitimate field, the oral cavity.

Is it too much to hope that in the beginning of this twentieth century we shall witness, from specially instituted chairs in schools of medicine and dentistry alike, teachings which shall make plain to both professions their true relations as to kinship, homogeneity and mutual interdependence; and which shall evolve a system of medico-dentobacteriological medicine having for its one object and aim the betterment of human teeth and the dethronement of mouth infection.

SUPPURATION OF THE FRONTAL, ETHMOID AND SPHENOID SINUSES.

WITH BRIEF REPORT OF THE TREATMENT OF TWO HUNDRED AND THIRTY-SEVEN CASES.

BY EDGAR M. HOLMES, M.D., BOSTON, MASS.

(Concluded from No. 12, page 312.)

In my series the sphenoid cavity was diseased in 182 cases or nearly 77%, and in 19 or a little more than 8% of the whole number both sides were affected. In 56 of the sphenoid cases the ethmoid cells were found to contain and discharge pus, and in 3 all of the accessory cavities were suppurative. In 39 patients I was able to demonstrate pus in the ethmoid cells, and could prove no associated disease in any of the other sinuses. In 11 there was coexisting suppurative inflammation in the frontal sinus. In 5 cases of frontal sinus suppuration I was unable to prove suppuration of the ethmoid cells. As regards the relative frequency with which the sphenoidal, the ethmoidial and the frontal sinuses are found to be suppurative, my figures are not in marked contrast to the reports of many others, but during the period of these observations I have diagnosticated antral empyemia in only 42 cases. I fear that many must have escaped me, as the great majority of pathologists as well as clinicians have found this cavity to be the more frequently attacked of all the sinuses. The fact that 61 of my cases consulted me for relief from ear trouble, and that every one in this class showed suppuration of the sphenoidal, of the ethmoidal or of the two combined, would account for quite an increased percentage of this class, but after removing these I still have over twice as many sphenoid as maxillary cases. In two of the frontal sinus cases I was able to detect through the naso-frontal duct with the probe roughened areas, which I took to be exposed bone, and in three cases after removing the outer wall of the frontal sinus, denuded bone could be seen as well as felt with the probe. In 89 of the sphenoid cases the probe came in contact with roughened areas, which I took to be exposed bone. Polypi extending into the nasal cavities were found in 26, into the ethmoid cells in 3 and into the sphenoid in 2 cases. In 18 cases I opened into cysts of the middle turbinate bone, finding pus in 9. In 5 of these cysts there were areas of necrosis, one having formed a communication with the nose. In one cystic cavity there

was a polyp which filled the whole space, and in another was a growth resembling a fine-grained tapioca custard. This under the microscope was said to be of a myxomatous nature. In one case I found a shoe button in the superior meatus which had remained in the nose for over twenty years, and in another case a sarcomatous mass, which was of the spindle cell variety and had invaded the antrum, the ethmoid and the sphenoid cavities. In 4 cases there was marked destruction of the septum nasi as well as necrosis in the sinus walls. There were present also other signs of syphilis in the mouth and throat, and I considered the sinus lesion to be a syphilitic process.

The symptoms of nasal sinusitis vary greatly in character and severity. A suppurative process may be present in one or more of the sinuses without local symptoms of sufficient severity to attract the patient's attention. Excessive secretion is a quite frequent symptom. This varies greatly in quantity and character. It may be chiefly pus or it may consist of a mixture of pus and mucus, and at times there is more or less blood. It may consist of lumps of pus suspended in mucus, or it may dry and form crusts which vary in color from a yellowish white to a greenish black. The secretion may be foul or it may be almost odorless. As a rule secretion from one side of the nose suggests either foreign body, local trauma, new growth, specific disease or unilateral empyema of one or more of the accessory sinuses. The patient may have the sense of a very disagreeable odor when others can detect nothing of it from the secretion. It may discharge mostly into the naso-pharynx, causing the symptom described as "dropping into the throat," or it may be mostly discharged from the anterior nares. There may be exacerbations of excessive discharge with intermissions of comparative freedom. These patients usually complain of having frequent colds in the head.

Pain is a very irregular symptom. In some cases of severe sinus disease it is absent and again it is so severe as to make life a burden, and resists large doses of analgesics. It is located and described so differently by different patients when the diseased area is the same so far as we can ascertain that, if given too much weight, it may mislead in making a diagnosis. There are certain characteristics, however, which are found of considerable service in helping to differentiate some obscure cases. When pain is due to eye strain it is usually worse after using the eyes. It is often absent in the morning or after a period of rest. Pain due to nasal disease is frequently worse in the morning and may become less later in the day. I have seen cases, however, which were cured of their pain by relieving an ethmoiditis when the use of the eyes increased the pain and when it was usually worse at night. Deflections and spurs of the nasal septum and foreign bodies in the nose may produce similar pain to that due to sinus disease. Pain of frontal sinus origin is spoken of as pressure at the base of the nose over the eyes of all degrees of intensity. It is frequently also associated with pain in the temples. Ethmoidal diseases may be accompanied by pain and pressure in the eyes, with a pressure described often as deep in the head. Occasionally there is frontal temporal and rarely suboccipital pain. When the sphenoid cavity is diseased and obstructed the pain is complained of

as deep and boring, and there is also almost always pain in the suboccipital region. It can be easily understood that pain as well as all symptoms of sinus disease is liable to wide variations, as the various cavities are so liable to be diseased at the same time, and as each cavity has been shown to vary in such a marked degree anatomically.

Mental depression is often very marked, especially in acute cases or during acute attacks of stenosis in chronic cases. The most marked depression apparently accompanies sphenoid and ethmoid diseases, especially the latter.

The symptoms pointing to the eyes often give us material aid. Beside the pain and pressure already mentioned there are functional disorders, as blurring, marked fatigue after using eyes, inability to overcome a small amount of astigmatism, diplopia, which may be spasmodic. Strabismus and ptosis may at times be present. Ethmoidal, frontal and maxillary disease may by direct pressure cause exophthalmos. Pressure upon the optic nerve may produce inflammatory processes of all degrees of intensity, which at times may end in atrophy of the nerve.

DIAGNOSIS.

It is often much easier to suspect a suppurative disease of one or more of the sinuses than it is to locate the site of the trouble, and when we have found one sinus to be diseased it may be hard to feel sure if one or more of the others are not also affected. The general symptoms already enumerated may be of great service in directing our attention in a general way to sinus affections and sometimes to certain cavities. Transillumination may be of service in examining the frontal and maxillary sinuses. We must not forget that a diseased cavity may have free drainage and transmit light as well as a healthy one, and that occasionally a healthy cavity transmits light very poorly; also, one or both frontal sinuses may be absent. Inspection of the nasal chambers through the anterior nares should receive our closest attention. There must be some system of procedure whereby each section is taken and carefully examined until every portion which the eye can reach has been inspected. This should first be done without clearing nose and without cocaine. When this has been accomplished cocaine can be applied, and after the mucous membrane has become contracted another inspection should be given. By these methods we find the condition of the mucous membrane whether hypertrophied or atrophied, and can discover if present deformities, cystic conditions of the turbinates, polypoid and other tumor growths, foreign bodies, dried plugs of secretion and pus. If pus is found we must, if possible, find its origin. We may find this only after several examinations.

Although the only positive diagnostic value of the location of pus is when it can be seen coming from a known cavity, yet when it is found to come from certain locations it is more or less suggestive of supuration of certain cells or groups of cells. When it is found to come from the middle meatus, it suggests trouble in the frontal, maxillary and anterior ethmoid group. If after cleansing, the middle meatus remains clear for some time and then pus appears after reclining the head to the other side, the antrum of Highmore is suggested as the source. Pus coming from the superior meatus about the middle tur-

binat suggests sphenoid or posterior ethmoid cell suppuration, and if the flow is increased by holding the head far forward, the sphenoid is liable to be the one affected. Pus may be so easily carried to parts of the nose remote from its source, either by gravity or blasts of air in sniffing or blowing, that only when we can see it discharge from a certain opening can we be sure of its origin. Much can be often gained, however, by shutting off certain areas with absorbent cotton. This procedure is also of service when we have found one area diseased and wish to stop its discharge to find if there be also a flow from other localities. When there have been distressing symptoms, together with a purulent discharge which does not subside under treatment, it seems justifiable to remove a part or the whole of the middle turbinate, after which it is often possible to more thoroughly inspect the openings from the various cavities.

The probe is, I believe, one of the most useful instruments we have in aiding us to explore cavities into which it is impossible to see. With it we can often detect granulations, ulcerated and denuded areas, and caries of the bony walls. While exploring a cavity we often produce pain, which the patient locates in exactly the area in which the pain associated with the disease is located. This fact is often of considerable value. The probe can almost always be used without removing the middle turbinate. It can be passed into the frontal sinus in about half of the cases and into the sphenoid in the great majority of cases. It should be very delicate, and should be used with great care when exploring the roof of the ethmoid and sphenoid cavities, and in fact to be of service must be used very gently over the whole mucous membrane lining of any of the accessory cavities, as it is easy to produce abrasions simulating ulcerations. It may also be misleading when it is in contact with dried secretion or with very brittle bone. It can, by changing the angle of the curve, be carried over practically the whole inner surface of the cavity under inspection.

The canula is another useful instrument through which the cavities can be cleansed or inflated. When used in stenosis of the naso-frontal duct, it often gives much relief to the symptoms as well as confirms a doubtful diagnosis. Before using either the probe or canula, the nasal cavities should be thoroughly cleansed.

Where pain and depression are prominent symptoms, the application of cocaine and adrenaline about the openings from the cavities may, by contracting the vessels in the swollen mucous membrane, allow better drainage and thereby give relief to the existing symptoms. When this has taken place, pus can sometimes be seen escaping from the affected area.

I have used, with considerable success, an instrument similar in action to Seigle's otoscope. It consists of a soft speculum tip which fits the nostril, a barrel with glass through which to inspect the interior of the nose, and a politzer bag with which to rarefy the air. The patient closes mouth and swallows when the compressed bag produces suction.

TREATMENT.

Of primary importance is the establishment of free drainage and the removal of all abnormal growths

and diseased tissue which tend to keep up the suppuration. In a large number of cases it is necessary to first remove a part or the whole of the middle turbinate, as this not only obscures from view the diseased areas we wish to reach, but prevents the introduction of instruments with which to remove the trouble in the more remote regions. This can be accomplished by first removing the anterior portion with a good cutting forcep and then separating the posterior portion with a snare scissors or cutting forcep. Large polyps can be removed by snare or forceps and smaller ones by a sharp curette. Diseased cavities must be opened by forceps drill, sharp spoon or some suitable instrument. All granulation and necrotic tissue should be removed as thoroughly as its location will permit. When possible the natural openings should be enlarged by removing portions of the bone about them. As a rule this is already diseased and brittle, and can be easily separated.

In all of these operations the areas should be as thoroughly cleansed and cocaineized as possible. The operation should occupy as little time as is necessary to accomplish the desired results, but of course great care must be used when working near the cribriform plate and at the roof of the ethmoid and sphenoid cavities. In the treatment of suppurative frontal sinus, much may be often gained by removing polyps or hypertrophied tissue about the infundibulum. The passage of the probe and the use of the canula may be of service. It seems doubtful if these are sufficient in severe cases, especially where there are extensive areas of ulceration, or polypoid formation within the cavity, and, when the symptoms persist after there can be found no internal obstruction to the normal drainage, some more extensive operation must be considered. Although it is possible to drill from the nasal cavity into the frontal sinus, and many operators advocate this route, yet as the sinus is often so extensive and the diseased conditions so advanced, the external operation offers much in its favor. Through such an opening the cavity can be thoroughly inspected, diseased tissue removed, sufficient communication established with the nose, and external drainage maintained until the more severe trouble is relieved. The safety and ease of this operation are strong reasons for its acceptance. The deformity following is the only strong argument against it, but if care is taken in making incision and in sacrificing as little of the superciliary ridge as possible, the resulting deformity in most cases is not marked. In operating upon the ethmoid cells, unless marked disease is found and it seems necessary to clean out the whole area at one operation, it often seems best to open up the area which is apparently most affected. If there is diseased tissue which is not removed and the symptoms persist, other portions may be reached at subsequent operations.

There are various forceps and curettes devised for the removal of diseased ethmoid tissue, but a small cutting forcep and three sizes of ring curettes are sufficient to remove the diseased tissue in nearly every case. The sphenoid can be reached by cutting away a portion of the anterior wall below the normal opening. Shaffer advocates a hook with which to tear away portions of bone. Grünwald uses a cutting forcep, and his method is easy and

sure in results. When forceps cannot be inserted into the normal opening, a drill can be first used and then the opening thus produced can be enlarged by the forceps. A sufficient opening should be made so that all granulation and necrotic areas may be reached and curetted if in a position where such a procedure is safe. Even a large opening may fill in and become closed in a few weeks and have to be again enlarged.

In the after-treatment the general as well as the local conditions must receive our attention. I shall speak here simply of the local treatment. For the first day after operation it is sometimes necessary to plug the injured areas to prevent hemorrhage, and when the patient is liable to be exposed to dust the anterior nares may be filled with absorbent cotton for two or three days. Where the discharge is not profuse, and where only small areas have been found to be diseased, it is not usually necessary to use washes or other local medication. Some of these cases are apparently well in ten days or two weeks. Unfortunately the majority are much more severely diseased, and it takes weeks or often months before the tissues are restored to such a condition that the symptoms and signs of disease have disappeared. Under the most favorable circumstances it takes a long time for large areas of exposed bone to become covered by a permanent membrane.

Where the pus is thick and liable to form crusts, it is well to have warm alkaline solutions used two or three times a day. A good instrument for using these solutions in the nose is a plain olive-tipped glass syringe. The patient's head is held forward so that all portions of the nasal cavity are below the level of the posterior nares, and the solution slowly forced into the nose from the syringe, the tip of which is inserted into the nostril. In this manner the whole cavity can be reached and cleansed without having to apply undue force. After this, as with any cleansing solution, care must be used about blowing the nose. After the nose has been cleansed an oily spray as hydrocarbolene, camphor, menthol and albolene or the like serves to soothe the membranes and give considerable comfort. Peroxide of hydrogen is often used and is highly recommended by some. I have used it with apparently good results in a number of cases. A half-strength solution of enzymol used morning and night after having first cleansed the nose has undoubtedly been of service in some of my cases.

Grünwald has obtained very satisfactory results in treatment of the sphenoid cavity by applying pure carbolic acid followed simply by irrigation.

The prognosis is of much importance, and in its consideration we have to take into account not only the local lesions but the resulting diseased conditions produced by them, as complications in these organs at times produce the more distressing if not the only symptoms. It may be possible to remove all trouble in the nose and yet get no improvement in the existing ear complication. The throat symptoms are almost always relieved if not entirely removed. Unless there has been extensive destruction with marked atrophy of the mucous membranes, a very favorable prognosis can be given, so far as the local symptoms are concerned. Even where there is atrophy with dry decomposing crusts accompanied by disagreeable odor, the prognosis is not necessarily bad. In fact

in the majority of these cases the distressing symptoms are relieved. Where they are not, there is doubtless an affected area which has not been reached by treatment. The more easily reached and the less extensive the necrosis, the sooner we may expect to get relief. The age and general physical condition of the patient, as in all processes of repair, play an important part. The pain is almost always relieved as soon as the pressure is relieved. There may be exacerbations whenever for any reason the opening becomes stopped. Pain in and back of eyes was relieved in 88 of my cases, 9 times in frontal, 28 times in ethmoid, and 6 times in sphenoid sinus disease. Six patients reported that they were able to dispense with glasses, which they had worn for mild degrees of astigmatism. One man had been obliged to wear constantly a + 75 cylinder on the right eye and + 50 cylinder on the left eye for over five years. He had been unable to leave them off for any length of time without severe headaches before operation. For a while the discharge may be increased after operation and this symptom be more pronounced. This increased discharge, however, lasts as a rule but a few days. Where there are large areas of denuded bone it may take weeks before there is complete healing, also when there are diseased areas near important structures which cannot be thoroughly curetted, the process of repair is retarded; again in such a spongy labyrinth as the ethmoid, it is easy to overlook one or more diseased cavities which may be sufficiently diseased to keep up a suppurative process.

In relation to polypoid formations, now that we are able to remove the diseased areas in the ethmoid, a large number of cases can be cured, whereas the simple removal of the polyps is in the great majority of cases only palliative. In eleven cases of polyps, where I removed the middle turbinate and all of the ethmoid which seemed to be diseased, there has been no return after a year. Eight of these patients had had polyps removed before, and some several times. I have had to operate upon eight the second time. In three cases new polyps seemed to form as fast as they were removed. The others of this series I have not seen and have received no reply to my cards of inquiry.

In the 16 cases of suppurative frontal sinus, 7 were relieved by removing obstructions in the middle meatus and draining the ethmoid cells. Four of these I was able to cleanse through canula, but into the other three I could not even pass the probe and could only cleanse about the opening of the infundibulum. Eight were apparently of a more severe type, and persisted after all internal treatment had been applied. Upon six of these I performed the external operation, and obtained good results in all but one. In this case both sides were diseased and there was extensive ulceration with much granulation tissue in the right sinus. There was free drainage into the nose on both sides, but the external wound remained open and discharged for nine weeks, when I again explored the cavity and removed a large amount of broken-down material. At the end of another eight weeks the cavity became closed, but there was marked deformity. Two patients refused to have an external incision, and in one the symptoms finally ceased to be troublesome, while in the other there have been

many exacerbations of pain with occasionally a discharge of pus into the nose.

In dealing with ethmoid suppuration there is such a labyrinth of cells, any one of which may be diseased, it is impossible to estimate with any degree of certainty the length of time necessary to produce a cure. Many cases where the symptoms are very severe and of long standing are relieved in a short time and others apparently less severe may take months. Fourteen in this series I discharged well in three weeks. Of the others 23 were well within two months, and 16 others within three months; 24 were apparently well after periods varying from three to six months, and 11 others after longer periods. The remaining cases were either not free from pus after long treatment, or after treating for a while, they failed to report for further examination.

The sphenoid cavity though large can be so thoroughly exposed and drained that the great majority of cases when not complicated are cured in a comparatively short time. In the 182 cases in this series there were only five of the non-complicated which were not cured by the end of six months. Two of these are discharging pus at present, although I can find no reason for it, unless, as sometimes happens, there is some small cavity which is diseased and communicates with the sphenoid. Eighteen cases were apparently well by the end of three weeks, 15 by the end of four weeks. Fifty-one cases were free from symptoms by the end of two months. Sixty-seven cases were under treatment between two and three months. Of the 26 remaining cases, 8 were discharged during the fourth month, 11 during the fifth month, and 7 during the sixth month. In nearly every case which was not free from symptoms by the end of two months there were either large areas of denuded bone or other cells were found to be diseased and discharging with the one under treatment. Even in the protracted cases the more severe symptoms as pain, pressure, dizziness, profuse discharge, etc., in the majority of cases, are quickly relieved.

As it is impossible to report individually from such a large number of cases in this paper, I hope to present, in the near future, many of the cases characteristic of the various classes.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL.

(Continued from No. 12, page 314.)

DR. WILLIAM H. SMITH spoke on

INFLUENZA PNEUMONIA.

Dr. Cabot has asked me to say a few words in regard to influenza pneumonia as seen at this hospital. I shall limit myself to a brief discussion of the fatal cases. To Dr. Wright is due the credit of recognizing these cases, for as far back as 1896 he isolated the influenza bacillus from a case of broncho-pneumonia. The difficulty of recognizing these cases is great. First, because the bacillus is frequently found associated with the pneumococcus or streptococcus,

and in the routine cultures made at autopsies in cases of pneumonia blood serum tubes are used; the pneumococcus and streptococcus grow readily upon this media, while the influenza bacillus, although it may be present in abundance, fails to grow, as it requires a special media, one containing hemoglobin. Furthermore, some familiarity with the organism is necessary, as it is extremely small, and even in culture upon suitable media a hand lens may be needed to see the colonies. It is due, therefore, to these two facts, I believe, that more cases of influenza pneumonia have not been recognized, not because they are so uncommon. Since Dr. Wright's first case in 1896, there have been thirteen other cases of pneumonia coming to autopsy in this hospital from which the influenza bacillus has been isolated. There have been ten cases from the medical side and four from the surgical side shortly following operation. It is, of course, recognized that the number of cases is too small to permit of deductions, at the same time there are a few points of interest which may be mentioned.

The most striking thing, perhaps, noted at autopsy in these cases has been the tendency to the formation of multiple foci of consolidation, often widely separated from each other. Numerous areas of consolidation have been found throughout both lungs in several cases, or multiple foci have been present in one, two, three, four, or, as in one case, in five lobes. The size of these foci varies from pea to bean, or from the size of a chestnut to that of a pigeon's or hen's egg. The process may be a broncho-lobular, or by fusion of lobules may simulate a lobar pneumonia. A true pneumococcus lobar pneumonia may be present with an associated influenzal broncho-pneumonia. The foci may lie directly beneath the pleura, upon which is a thin protective layer of fibrinous exudate. Such foci may go on to abscess formation, and this fact has a clinical value, for it explains why a sudden pneumothorax may develop in cases of influenza; such cases have been reported by Mosler, Kundrat and Fürbinger. Furthermore, the patches of pneumonia are frequently present in the upper lobes, and given a case with the process thus situated, with slow resolution, with the accompanying temperature and purulent sputum, the diagnosis of phthisis may be made.

In all of these cases the bronchi were injected and filled with a mucoid or purulent secretion; on two occasions I cut up the entire bronchial tract, and found this purulent secretion even in the smallest bronchioles. Examination of this secretion shows it to contain chiefly pus corpuscles with desquamated bronchial epithelium, a few pneumococci or streptococci or both, but many influenza bacilli both within and outside of the leucocytes. Sections of the lung when stained and examined show the exudate in the alveoli to be made up largely of leucocytes, with varying amounts of fibrin, a few pneumococci or other organisms, but large numbers of influenza bacilli.

The age of the youngest patient in this series was two years, the oldest seventy-two. There is nothing characteristic about the pulse, respiration, or temperature, as may be seen by examining these charts (charts shown). Where the examination of the blood is recorded there was no leucocytosis, with the exception of one case, with an associated lobar pneu-

monia of pneumococcus origin; in this patient there was an increased white count.

The signs in the lungs may be those of a localized or a diffuse bronchitis, or there may be evidence of larger or smaller areas of consolidation. The rapidity with which such foci would appear at points in the lung widely separated from the original focus has been recorded. The following history illustrates this point well: A man of fifty-nine entered the hospital in January, 1899, with symptoms dating back eleven days, suggesting influenza. Upon examination at entrance no dullness or bronchial elements could be detected, many snoring râles were heard, particularly over both bases. Two days after entrance consolidation appeared at the right apex, twelve hours later there was a patch at the right back, and the expiration was harsh at both apices. Two days later consolidation was present at the left back. The sputum in this case showed both pneumococci and influenza bacilli. In other words, this patient entered with a bronchitis, after two days consolidation appeared at the right apex, twelve hours later at right back with suspicious signs at the left apex, and two days later a focus of consolidation developed at the left back. At autopsy eight days after entrance to the hospital, multiple patches of pneumonia were found at the right upper lobe, numerous foci in the right lower lobe and a focus the size of a hen's egg in the left lower lobe.

In closing it may be interesting to note that cases of influenza pneumonia have come to autopsy in the Massachusetts General Hospital in January, February, March, April, May, June, September, November and December, and at times when there was no epidemic of influenza recognized.

Dr. F. E. Lord gave the results of his work on

INFLUENZA.

Through the courtesy of Dr. R. C. Cabot I was able, during the summer of 1902, to examine the sputa of many of his cases with cough and expectoration, in whom repeated examinations for tubercle bacilli had been negative. No discrimination was used in the selection of these specimens, and the series comprised acute and chronic coughs, both mild and severe.

In the first one hundred sputa, influenza bacilli were present in sixty, in large or small numbers; in twenty-nine of these sixty cases, influenza bacilli were in great numbers, and in practically pure culture in the fresh sputa. In all, the influenza bacilli were isolated from the specimens in pure culture on blood agar, proved not to grow on plain agar and to decolorize by Gram's method of staining.

Infection with influenza bacilli is therefore prevalent apart from epidemics.

Eleven of the out-patient cases were acute, eighteen were chronic.

Besides the eleven out-patient cases, eighteen acute cases have been analyzed from the house records. No house cases were included unless the diagnosis of influenza was confirmed by the presence of influenza bacilli in great numbers and in practically pure culture in the sputum.

The twenty-nine cases of acute influenza thus obtained were like epidemic influenza, except that the prostration was not so extreme. In their history and course they resembled other bacterial infections

of the respiratory tract, and the diagnosis was made with certainty only by finding influenza bacilli in great numbers in the sputum. Before the cause of their illness was thus determined, some of them were thought to have typhoid.

Twenty of these twenty-nine acute cases have been followed to determine the result of acute influenza.

Fifteen of the twenty had signs of bronchitis only. Thirteen of these fifteen recovered within six weeks. One still coughs with influenza bacilli in his sputum, three months after the onset of the disease. In a second, in whom the bronchitis was at first diffuse, there are now signs of localized bronchitis at the right base, but no influenza bacilli in his sputum, three months since onset. Five of the twenty cases had broncho-pneumonia. Two recovered after relapses and an illness of three and nine months. In a third, the solidification persisted for six to seven months, and this patient still coughs with influenza bacilli in his sputum, one year and nine months since he entered the hospital. The two remaining cases with broncho-pneumonia are dead. An autopsy was obtained on one, and sections of the lung showed influenza bacilli in large numbers.

Thus of the twenty cases, symptoms lasted for at least three months in five, and in one influenza bacilli are now present, after one year and nine months.

CHRONIC INFLUENZA.

Among the twenty-nine cases of influenza from the out-patient, eighteen have had a cough for months or years, with little variation in the amount, consistency or color of their sputum. Many of these chronic cases have been observed for months, one for a year and three months, and another for one year and nine months. Specimens of their sputa, obtained at frequent intervals, have shown influenza bacilli in practically pure culture.

These cases had been classed clinically as chronic bronchitis. It therefore seems that many of the cases formerly described as chronic bronchitis are chronic influenza.

The sputum of these cases has been purulent, usually tenacious and greenish in color.

Physical examination of these cases was negative in three. A bronchitis localized at both apices was found in one, a diffuse bronchitis in twelve, and broncho-pneumonia, as a cause of an acute exacerbation, in two.

Considerable change in the location and extent of the bronchitis was noteworthy in successive examinations.

Four of the eighteen cases with chronic influenza had attacks of paroxysmal dyspnea, for the most part nocturnal, but little influenced by climate or atmosphere. Nasal examination was negative in three. In one, Dr. Coolidge found chronic ethmoiditis, which may have had some influence on the attacks. Three cases showed no eosinophilia in a differential count of the blood. In these, the sputum has been greenish, purulent and constantly crowded with influenza bacilli, without eosinophiles, Curschmann spirals or Charcot-Leyden crystals. In the fourth case there were 5 to 10% of eosinophiles in the blood. The sputum contained greenish, purulent

masses in a colorless tenacious fluid. These masses contained influenza bacilli in great numbers. They have gradually disappeared from the sputum. In the tenacious fluid no influenza bacilli are now found, but there are great numbers of mononuclear eosinophiles and Curschmann spirals. This case must be regarded as coexisting asthma and influenza.

From the first three cases it may be that chronic influenza alone can closely resemble asthma.

The nose has been examined in nine of the chronic cases. No constant nasal disease has been established. Influenza bacilli were isolated in pure culture from the nasal secretion in two of the nine cases.

Chronic influenza is not infrequently mistaken for pulmonary tuberculosis.

Four of these cases at some time in the course of their illness had been sent to consumptives' homes. A fifth case was refused admission to a State institution for the cure of tuberculosis as too advanced.

CASES.

Ellsworth; sixty-eight. "Grippe," five years ago, and again four years ago. Yellowish green sputum since last attack. Under observation for two months.

Downing; sixty-one. Yellowish green sputum for forty-four years. Under observation for one year and three months.

Both patients have emphysema, diffuse bronchitis and probable bronchiectasis.

Their sputum, although frequently examined, has never shown tubercle bacilli. The tuberculin reaction was negative in both.

Their sputum has been constantly crowded with influenza bacilli.

Dr. Lord then showed two cases of chronic influenza.

The first patient, sixty-eight years old, had been under observation for two months. She had had "grippe" five years and again four years ago, with cough and abundant green sputum since the last attack.

The second patient, sixty-two years old, had been under observation for one year and three months. She had had cough and abundant green sputum for forty-four years.

Both cases were thought to have tuberculosis. Their sputum has been constantly crowded with influenza bacilli. No tubercle bacilli have been found in repeated examination, and they do not react to an injection of tuberculin. Both have emphysema, probable bronchiectasis and diffuse bronchitis.

Dr. R. C. Cabot: Two or three points seem worth mentioning. In the first place, this work is new, and it is very important work. The next thing that impresses me is the commonness of influenza outside of epidemics. It is very suggestive that sixty out of one hundred of these cases showed the influenza bacilla.

The third point is that these cases were considered as consumptive thirty or forty years ago. We can easily understand how simple it is to say that one has missed the tubercle bacilli, and diagnosed the case from the chronic cough and the emaciation. There was one case of this kind

refused admission at Rutland, the idea being that it was too far advanced.

Dr. F. C. Shattuck: Dr. Lord mentioned the fact that Curschmann's spirals were found in one case of asthma. I have a patient in my ward now who has the spirals, the first I have ever seen.

HERPETIFORM AND BULLOUS DERMATITIS.

Dr. R. H. Fitz showed the patient, a meat chopper, who, six weeks after having been vaccinated, wounded his right thumb while cutting meat.



A week later the wound became swollen and painful, and the patient had chilly sensations and was obliged to go to bed on account of weakness.

Groups of vesicles accompanied with itching then appeared on the back of the hands and wrists, and three or four days later bullæ formed in large numbers upon the head, trunk and extremities. The blisters were as large as walnuts.

He entered the hospital nineteen days after the injury. There was a moderate elevation of the temperature, no leucocytosis, but 6% of eosinophiles. The bullæ healed readily, and there was little or no tendency to ulceration. The epidermis separated from the feet like portions of a mould, and the new formation of epidermis on the blistered portions of the skin occasionally assumed a serpiginous character.

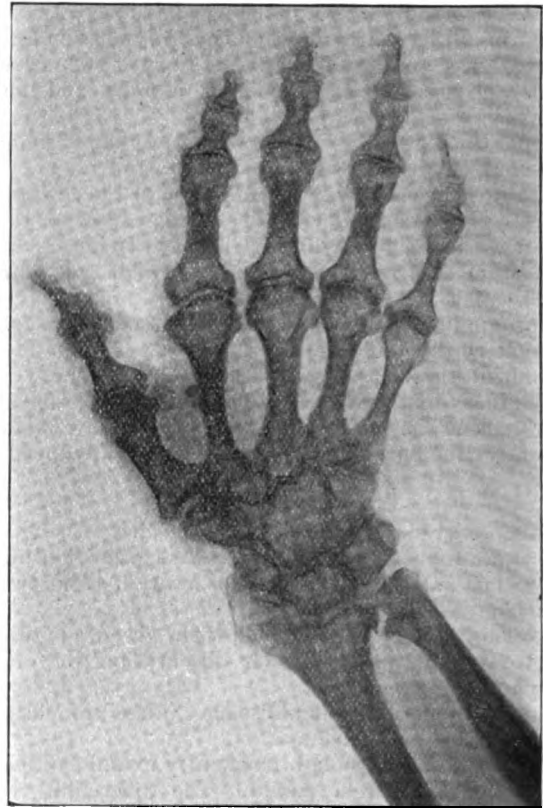
The case is of interest especially from its etiology. There was evidently a traumatic infection of an exceptional nature, and the appearances corresponded with those which have been observed in a limited number of patients after vaccination. Dr. J. T. Bowen has reported such cases of post-vaccinal herpetic dermatitis, and there was one fatal case in the male ward last year.

Neusser states that a septic bullous dermatitis, usually fatal, has been seen in butchers whose fingers have been infected.

The nature of the lesions and the presence of the hoof and mouth disease in localities not far distant have suggested the possibility of the infection from this source. It is known that butchers have thus been infected when slaughtering the diseased

animals, although the hands and arms have been the seat of the eruption. There were no blisters in

A brother was humpbacked. She stated that her finger joints were noticeably enlarged a few



the mouth of this patient, but they have been absent in man where disease has been produced by wound infection.

The patient is convalescent and the disease has run an unusually mild course under the circumstances. Dr. J. H. Wright has made a bacteriological examination of the serum from the blisters, but has been unable to obtain any further information which might aid in throwing light upon the etiology of the patient's disease.

Dr. Fritz next showed a

CHONDRO-DYSTROPHIC DWARF.

The patient, forty-one years of age, unmarried, came under the care of Dr. E. P. Joslin at the House of the Good Samaritan with pains and stiffness in the hip and grating of the knee joints. She was referred by him to the hospital, that the nature of her deformities might be more accurately determined by means of the x-ray.



months after birth; that her deformities were apparent in childhood, when she wore apparatus to strengthen her feet and legs. She ceased to grow after the age of fifteen.

It is obvious that there is little or no deformity of the head and trunk while the arms and legs are so short that, as Dr. Goodall's measurements show, they correspond with those of a child of fourteen.

There is abundant fat tissue, especially at the knees, which are closely approximated; although the feet are widely separated there is no redundancy of skin.

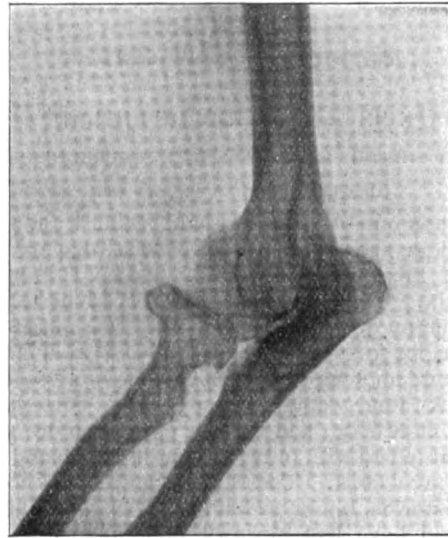
The hands are stubbed, but the feet are not especially small. The former are abducted as in certain cases of arthritis deformans, and the feet show a definite talipes valgus. The motions of the hands and feet are restricted.

The skiagraphs make it clear that the shortening of the extremities is the result of disturbances in the growth of the epiphyses of the long bones, associated, also, with changes in the periosteal growth of these bones.



The head of the humerus is markedly enlarged while the shaft is short and narrow, causing a club-shaped appearance. The condyles also are enlarged. The head and tuberosity of the radius are enlarged, and from the lower edge of the former there is a sharply defined spine pointing towards the tuberosity. The styloid process of the radius is so enlarged, especially elongated, that the scaphoid lies nearly on a level with the os magnum, in consequence of which the abduction of the hand has taken place. The edge of the radial articulating surface is provided with a spinous prominence.

The top of the enlarged olecranon is represented by a sharply defined spine, and the styloid process of the ulna also appears enlarged. There is no evident alteration in the development of the carpal bones. The bones of the metacarpus and the phalanges are short; their epiphyseal ends, especially the distal, are decidedly enlarged. The proximal articulating ends are widened and thick-



ened, suggesting an increased periosteal growth of bone after the fusion of the enlarged epiphysis. The condyles of the femur and the head of the tibia and fibula are conspicuously enlarged, and a spicule of bone projects from the front of the tibia near the articulating surface. The tarsal bones are so enlarged as to simulate the appearances in acromegaly, and there are decided hypertrophy and irregularity of the epiphyseal end of the os calcis. The metatarsal and phalangeal bones of the feet show alterations similar to those observed in the analogous bones of the hand, the enlargement being most marked in the distal epiphyses.

The skiagraphs prepared by Mr. Dodd make it apparent that the shortening of the extremities is due essentially to an arrest of epiphyseal growth in length with a frequent luxuriant transverse growth in addition to an occasional protuberant growth. As a complication later in life there appears to have been the localized periosteal changes resulting from arthritis deformans.

The epiphyseal changes observed in this patient correspond to those described by Kaufmann as chondro-dystrophy. Cases of this affection often have been reported as fetal rickets, although it is now generally agreed that the process is quite independent of rickets, although its causes are wholly unknown. Sufferers from chondro-dystrophy as a rule die in early infancy and often are stillborn. This patient, therefore, is exceptional, though not unique as to age.

Although the deformities usually begin in fetal life and are apparent at birth, the evidence presented by this case indicates that the disturbed nutrition and growth of the cartilaginous ends of the

bones may first be recognized some months after birth. Another fact worthy of mention is that chondro-dystrophy has repeatedly been observed in cretinoid infants, and confusion has arisen in differentiating between infantile, sporadic cretinism (congenital myxedema) and chondro-dystrophy. This patient presents none of the deformities characteristic of myxedema or of cretinism.

(To be continued.)

Reports of Societies.

THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

THE TREATMENT OF ECLAMPSIA, BY WILMER KRUSEN, M.D.

(Concluded from No. 12, page 820.)

THERE is one other form about which I am a little doubtful in my mind. I have seen two or three cases of this form which I have called fulminating eclampsia. This has been brought on by eating a large amount of indigestible food. One patient had eaten a lot of half boiled cabbage and grapes. There were no symptoms of headache or sign of toxemia. Another woman whom I saw in consultation about a month ago had eaten a large amount of pie. She went to bed with only slight indigestion and woke up in convulsions. These cases have had no previous histories, but after having eaten some indigestible food have had more or less indigestion, and have gone into eclamptic convulsions without any apparent toxemic symptoms. I believe that if we watch our patients there will be very few cases of eclampsia, and that the cases can be much better treated before the eclampsia occurs than after. I would lay special stress upon the amount of urea in the urine. My experience is that when this gets below 1% the woman is in danger, and should have small doses of calomel grain one-tenth to grain one-fourth three times a day with a milk diet.

Regarding the general treatment, I have nothing to add, except that in my experience veratrum viride has done well, especially in ten-minim doses repeated. I also believe in the use of salt solution. In the matter of delivery, my experience teaches me that the more quickly the child is delivered without undue violence, the better. Time should be taken to dilate the cervix. This can best be done with fingers in a large number of cases. I have not used Bozzi's dilator, but from examining it would think that the cervix would be torn if dilated too rapidly. I am especially fond of using the McLean bag. This can be put in the cervix, and with a good piston syringe I can dilate the cervix in an hour. If the cervix is very rigid it may require three hours for dilatation. It is not only for the sake of the mother, but for the child that delivery should be brought about; for if the child is kept in a woman having convulsions it will almost invariably be lost, and if delivered will die of toxemic symptoms very much resembling those of the mother. My experience in raising children born of eclamptic mothers has not been very successful, only three or four out of a great many cases having lived.

DR. JOHN C. DACOSTA: As Dr. Barnes said, there is such a diversity of opinion as to the etiology of eclampsia that one is at a loss to form the true idea

of the causes. There may be a variety of causes. The keynote of treatment was struck in what Dr. Krusen said about prophylaxis, and especially in what Dr. Coles said about the preventability of eclampsia. I go farther than Dr. Coles, and think the cases can be reduced more than 90% if the patient is treated in time. I believe a great deal of the mortality and many of the cases of eclampsia are due to neglect of the patient. The patient calls upon her doctor, engages him and sends for him when about to be confined. To use a homely phrase, you would not take a horse out of a stable, put him upon the race track and expect him to win. You train your horse beforehand, and then expect him to win. Train your woman for six weeks or two months before her labor, and the number of cases will be reduced more than 90%.

What Dr. Norris said I think was a very important point; that is, we should not only know the percentage of urea eliminated, but the amount in grains eliminated per diem. You may have 2% of urea and a woman passing only 8 to 12 oz. of urine a day and loading herself up with toxic products, and she may have convulsions. Train her two months beforehand, so that the excretory organs are in good working order. Restrict the diet, examine the urine weekly for albumin and urea, and the amount of urea. If a convulsion occurs, the best treatment is to empty the patient's stomach, bowels and bladder, and, as Dr. Coles has suggested, get the baby out as quickly as possible without any undue violence. After all this, if convulsions continue (although I know veratrum viride is a very useful agent, you don't have time to use it), I am a firm believer in the value of the lancet. If you have not your lance with you, you have your pocket knife. I have seen a number of cases of puerperal convulsions in consultation, but have never had such a case in my private practice, probably because I do not care to attend patients unless I have had them under my care for a couple of months. I do not regret a single case in which I have been allowed to bleed, but do regret every case in which I was not allowed to bleed. Over twenty years ago I was struck with the remark of a prominent practitioner upon the value of venesection. While a resident in Blockley he had made post-mortem examinations of twenty patients dying of puerperal convulsions, and in nineteen of these found a big clot of blood in the brain.

When you have the dry, hot skin and the quick, irritable pulse and put your lancet or knife into the arm you often do not get any blood. You have to manipulate that hand and arm, and then you get a great tarry string before you can get any blood to flow. You should bleed that woman until you get the pulse down in speed and up in power. She will probably then get well.

DR. L. J. HAMMOND: I have not for some years been much interested in obstetrics, though I have had a very large experience, much larger than I desired, in the treatment of eclampsia. Two conditions that I have especially observed are that: first, eclampsia occurs in pregnant women who have previous to the pregnancy been subjects of nephritis; second, there is a condition of eclampsia which develops in pregnant women who have not been previous to pregnancy subjects of kidney disease,

but who during the course of pregnancy, and I believe dependent upon it, develop acute nephritis. In those cases in which the pregnancy followed the kidney disease, so to speak, we invariably have the most serious form of eclampsia to deal with. Those in which we have, as several gentlemen have spoken of, a condition that seems to be an involvement of the liver, but which I always felt was in reality the result of the nephritis rather than a change of the hepatic structure; in other words, the hepatic condition was the result of and not the causative factor in the production of these various abnormal systemic conditions. In support of this I may say that no case of eclampsia has ever come under my observation where the clinical picture of nephritis did not foreshadow all other organic lesions. For this reason, and in view of the fact that the various hypotheses have no definite conclusions as to the etiology other than that it is due to nephritis, and in view of the fact that decapsulation of the kidney has been effective where prophylaxis has not been satisfactory in conditions due to parenchymatous change, in other than pregnant women, I would ask, would it not be good practice to do the operation of decapsulation as a radical prophylactic measure when the more conservative prophylaxis seemed not to lessen the dangers of eclampsia at the sixth or seventh month, or as early as could be done if one felt confident that the kidney change existed prior to the pregnancy. It seems to me that such favorable results have been reported from the operation of decapsulation that I see no reason why it should not be considered in connection with these very depressing conditions associated with pregnancy.

DR. HOPKINSON: The subject has been so thoroughly gone over that there is not much to add in reference to the etiology of the disease. We all agree with the writer that it is very obscure, and it seems more obscure to me to-night than ever before. The thyroid treatment opens up a new field, which we ought to try on account of its harmlessness. The Stroganoff treatment has been mentioned. I have employed it in five cases without mortality. I regard the use of oxygen superior to that of chloroform. Chloral, I think, is a valuable drug in this disease, and when given with morphia we can avoid the eliminating processes, sweating, purging, bleeding or the salt solutions, etc.

I look upon eclampsia as an acute infectious disease of rather short duration, rarely lasting over forty-eight hours.

In reference to emptying the uterus, I have never used that forty dollar instrument, I prefer the fingers for dilating. It takes about an hour to dilate the cervix and another hour to dilate the lower segment of the uterus. That is the time I would usually consider the safe limit in *accouchement forcé*, especially in primiparæ.

I would like to hear more about the use of chloral. This, I believe, is used largely by the French, morphia by the Germans. Stroganoff treatment combines the two.

DR. GEORGE H. BOYD: I think we owe a debt of thanks to the essayists for the interesting and exhaustive papers on eclampsia. We could probably discuss the subject until midnight and be enlightened in some respects and yet be a little farther from the solution in the end. There is no doubt

but that we can do most by prophylaxis. If we can follow our patients through pregnancy we will not have cases of eclampsia. I agree with the remarks made by Dr. Norris regarding the hygiene of pregnancy, involving the care of the bowels, diet and exercise which will avoid the result of eclampsia. We do not know what produces the toxemia, and we do not know what drugs to use in its treatment. I think it is a great mistake to lay great stress on any one drug. Dr. Norris speaks highly of *veratrum viride*. I have used it for five or six years, and find that it is more of a depressant than other drugs of its character. I feel convinced from my practical work that it is a good thing to empty the uterus, and I believe the best dilator is the fingers. The drugs which seem to me to be chiefly indicated are chloral and morphia, with chloroform for the convulsions, but am still doubtful as to the efficacy of any medication in this disease.

DR. D. E. LONGAKER: It seems fitting that the importance of the medical treatment of eclampsia should be emphasized. I am confident that it is not a mistake to treat the convulsions first, and I am sure that the best results will be obtained in this way. We know that in probably one third of all cases of eclampsia the convulsions first occur post-partum; and, where the convulsions occur before delivery, late in pregnancy, without any sign of labor, I am convinced that I have seen the most disastrous results occur by precipitate delivery, probably neglecting the medical treatment. In such cases, by all means treat the case medically. Treat the convulsions; treat the case surgically, obstetrically afterwards, but by all means arrest the convulsions. Chief and best of the medical agents in my experience has been *veratrum viride* systemically used to the amount of probably five to seven drops of the tincture or of the liquid *veratrum viride* used probably at fifteen-minute intervals until the pulse is brought below 60. I believe it is the rule that when the pulse is kept below 60 convulsions do not occur. Some years ago one of the fellows of the American Gynecological Society went into the subject of the treatment of *veratrum viride* rather exhaustively, with the result of recommending it most highly when used systematically in this way. Next to *veratrum viride* the chloral and bromide administered by the rectum I have found valuable, to the amount of dram doses of the chloral and proportionately as much of the bromide. Next to these comes the eliminative treatment and one drug which I have found of value used over a long period is elaterium. In my experience the results are better under energetic medical treatment than under the more radical surgical or obstetric.

DR. BARNES closes: I am glad for two or three reasons that the discussion turned chiefly upon treatment; first, because of its more immediate practical importance, and because we cannot settle the question of etiology in one evening; and, second, because there is not so much for me to respond to so far as etiology is concerned. One of my acquaintances has the honesty to say that he is even more confused since my paper in regard to the etiology than before. I shall not feel elated, but I have such a sense of the humorous that I am more pleased than injured. I shall take the more agreeable consideration, thinking that he means that we cannot

comprehend the question of etiology, and that when we discuss a difficult question we all do feel more perplexed than before. In regard to the inhalation of chloroform during the convulsive seizures, I have used it and seen it so used that it was valueless; that is, the administration would be begun after the spasm had assumed the onset. The convulsion must be anticipated if it is to be modified or controlled.

Dr. Norris seemed to belittle the value of examination of the urine, but later said he depended upon it to determine the amount of urea. We may have a normal amount of urea, but in following the patients possibly find toxic symptoms regardless of this. We need to watch and guard our patients. Predisposing causes must be understood, the excretory organs and the nervous system. Our patients must be constantly interrogated. Dr. Norris also said that anemia had oftentimes a close proximity to toxemia. I have a patient now who seems to illustrate that fact. The woman has given birth to children rapidly. A child was born a year ago, and on last Sunday another was born. The one born a year ago was weak and died, and the burden of caring for that while carrying the one just born was a great drain upon her strength. A few weeks ago she had an attack of the grippe, and following that she was especially toxemic, with a low percentage of urea and some hyaline casts. She tried to go into labor but was becoming irritable and worn out. Her condition emphasized the value of the rubber bag. This was introduced and remained in for several hours. She had considerable pain; the cervix was two thirds dilated. I felt that this was much better accomplished than by hand. She subsequently delivered herself promptly.

Dr. Hammond speaks of the cases which previously had nephritis as being the most serious. I think that the purely toxemic type is the more dangerous. They are more serious because the onset is insidious and they become very toxemic before the condition is recognized. In those cases in which nephritis previously existed and is recognized, the physician is on his guard.

In regard to the statement that one third of the cases of eclampsia occur post-partum, I think that statistics will show that a little more than one fourth occur before the onset of labor, about one half during labor, and less than one fourth postpartum.

Dr. Krusen closes: As I said in the beginning of my paper, I think it has been pretty clearly demonstrated that there are mooted points in the treatment of eclampsia. Dr. Norris has emphasized the importance of the examination of the urine in estimating the amount of urea excreted, and commended the use of drugs stimulating the action of the liver and kidneys. In regard to venesection, I am sorry I did not use it in cases in which I employed veratrum viride. It is not to be supposed for one minute that we would bleed a poor miserable anemic woman. I can hardly think either that one would give veratrum viride in such a case. There are positive indications for each remedy. Morphia I have found to be a good drug. We have to consider the practical side of these questions, employing the method practical under the circumstances in which we are working. It is not to be supposed either that I would give chloroform during a convulsion. It is to

be given when we see the little twitching signs, the rolling of the eyes, etc., and about thirty seconds or a minute before the true convulsion appears.

Dr. Colés spoke of the different forms of eclampsia. This is an interesting point. In the treatment of eclampsia I did not have time to consider the different forms in detail. In regard to the use of veratrum viride I think it makes a difference whether Norwood's tincture or the ordinary tincture is used.

Dr. DaCosta spoke of the character of the blood. That is often noticed and is one of the evidences in profound toxemia of the changes that take place in the blood.

I think Dr. Hammond's remarks form another evidence of the prevention of apoplexy. It does not matter so much as to the amount of blood that is drawn, but as to the effect upon the pulse.

In regard to Edebohls' operation, I had thought of that after reading papers on decapsulation of the kidney, but I do not know that any obstetrician has had the courage to perform it during pregnancy. If, however, it is indicated in acute Bright's disease, why should it not be indicated in the condition under discussion?

Straganoff's name seems to be closely associated with eclampsia, and I have often wondered whether his statements were absolutely accurate, because it seems to me it is wonderful to report such a very slight mortality. There is no American obstetrician who can give statistics compared to his.

Chloral I did not mention because I do not use it. Morphia I find takes its place. Why should I give chloral and sodium bromide if I can get rid of the nervous irritation as quickly by morphia? It is often impossible to give anything by the mouth, and if given per rectum is apt to be expelled by the convulsive action of the patient. It also interferes with the injection of salt solution, which I feel to be valuable in these cases. The method of dilatation I have always employed is that of manual.

Recent Literature.

A Manual of Dissection and Practical Anatomy Founded on Gray and Gerrish. By WILLIAM T. ECKLEY, M.D., Professor of Anatomy, and CORINNE B. ECKLEY, Demonstrator of Anatomy in the Medical and Dental Departments of the University of Illinois. In one octavo volume of 400 pages. Illustrated with 220 engravings, 116 of which are colored. Philadelphia and New York: Lea Brothers & Co., Publishers.

This volume is essentially a condensation and rearrangement of the works of Gray and Gerrish, planned with particular inference to the needs of dissecters. The subject is taken up from the standpoint of regions, many less important details are omitted and the student is afforded a quick, and for the most part adequate, means of reference. Such an arrangement has many advantages for the practising physician over the more systematic plan of the larger books. The illustrations are numerous and excellent, and also familiar, since they are taken in great part without alteration from other books. The size of the volume is a recommendation.

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THE GRADING OF DEFECTIVE PUBLIC SCHOOL CHILDREN.

ONE of the serious problems of our public school system is the proper classification of pupils. It is inevitable, in a large city in which pupils must be taken from varying classes in the community, with a large admixture of foreigners, that different degrees of intelligence in children of approximately the same age must be frequent. Particularly difficult is the question of the proper classification of those children who are congenitally backward in mental development, or who are actually deficient and wholly incapable of acquiring rudimentary knowledge.

These difficulties have naturally been for a long time recognized, and in some instances different measures for the improvement of the conditions have been undertaken. In Boston, for example, according to the twenty-second annual report of the superintendent of public schools, three special classes in the schools for the instruction of mentally defective children have been in existence for several years, but have attracted little public attention until very recently. Since the publication of this report, two more classes have been formed in outlying portions of the city. These classes are naturally recruited from the ordinary classes, largely through the judgment of teachers who find certain pupils incapable of keeping up with the average. As the matter has attracted more and more attention, the attempt has been made to classify these defective children under three general types: first, true imbeciles, who are wholly unfitted to be kept in public schools; secondly, somewhat feeble-minded children, who are practically unimprovable under ordinary class room instruction; and, thirdly, children who come within normal limits, but who are exceptionally dull and who require special instruction. It is evident from

the medical point of view that anything like a strict classification into these three classes is extremely difficult and often impossible. As a working basis, however, it is in general to be commended.

The so-called special classes, to which we have already alluded, are designed for children of the second type, namely, those who are feeble-minded and incapable of improvement under ordinary classroom conditions. Such children for their own good and also for the good of other pupils should be under the instruction of specially equipped teachers. It should also be recognized far more than is at present the case that the teaching of these children is an extremely difficult although by no means a thankless undertaking, and should be entrusted to teachers of very exceptional training and qualifications. Such teachers are, fortunately, under present conditions obtainable, although not always easily. For children of the first class it is clear that the public school is in no way adapted. They should be treated at special schools for imbeciles, an admirable example of which we have in this State at Waverley.

More important perhaps than the special classes are classes which should be connected with all grammar schools, which may be called ungraded classes. These are for the purpose of giving special instruction to pupils whose mental processes are slow, and who are, therefore, not able to compete with their fellow students. The importance of this type should be very clearly recognized, and should not be relegated to the position of a class to which poor scholars are sent, regardless of their future mental development. According to the superintendent's report, to which we have referred, the error has at times been made of assigning highly unskilled teachers to these somewhat, from the general point of view, uninteresting classes, rather than selecting with great care the instructor who has a particular aptitude for this most difficult and, therefore, in a sense, desirable teaching. Many of these ungraded classes are, undoubtedly, admirably managed and admirably taught, but there still seems to be a certain necessity for the recognition of the fact that everywhere and in all classes special attention should be given to these pupils who with care may undoubtedly make not only useful but entirely intelligent men and women. It is also to be borne in mind that many of these pupils, by special training, may again be restored to the regular graded classes.

The whole matter evidently has a very direct medical bearing, and one in which physicians in general should manifest a high degree of interest. Admirable as our public school system in many respects is, it undoubtedly demands an improvement in the proper grading of pupils of defective intelli-

gence. Public opinion, and especially public medical opinion, in this, as in many other matters, would do much to assist those in authority in carrying out what must be a difficult plan, even under the most favorable auspices. We beg to direct attention, therefore, to this report as a clear presentation of the difficulties which our public schools have to face and the ideals toward which they should strive.

CREMATION IN ENGLAND.

THE demand for facilities for the incineration of dead bodies has considerably increased in England in recent years. About 2,500 bodies have been incinerated at the Woking Crematory near London, and other establishments of similar character have now been erected at Manchester, Liverpool, Glasgow, Darlington, Hull and Leicester. This fact has given rise to a parliamentary inquiry upon the subject of cremation, which has now been made public.¹

The object of the investigation was to obtain the necessary information in order to prepare a draft of regulations required by the seventh section of the Cremation Act of 1902, which reads as follows:

"The Secretary of State shall make regulations as to the maintenance and inspection of crematoria, and prescribing in what cases and under what conditions the burning of any human remains may take place, and directing the disposition or the interment of the ashes, and prescribing the forms of the notices, certificates and declarations to be given or made before any such burning is permitted to take place, such declarations to be made under and by virtue of the Statutory Declarations Act, 1835, and also regulations as to the registration of such burnings as have taken place." — *Cremation Act, 1902 (2 Edward VII, Chap. 8, Sect. 7).*

The principal persons who appeared before the committee were Sir Henry Thompson and the principal managers of different crematories, together with Dr. Stevenson, analyst to the Home Office. Sir Francis Seymour Haden, a prominent advocate of reform in earth burial, was the principal opponent.

One of the principal points in the inquiry was the alleged danger of employing cremation to destroy the evidence of crime. It appeared from evidence presented that cases had occurred in England in which the bodies of murdered persons had been buried without any certificate of the cause of death. It was also stated that the English law "permits burial without certification of the cause of death," and moreover that in "more numerous cases the certificate had been given without sufficient inquiry, sometimes by a medical man who had not

seen the deceased in his last illness nor the body after death. When Mary Ann Cotton, who for the sake of insurance money murdered no less than twenty persons in all, had disposed of a husband and four children in quick succession by arsenic poisoning, a medical man certified the deaths to be due to 'gastric fever,' although the symptoms were inconsistent with death from that cause."

With such facts in view the committee concludes that "the process of cremation must be carefully guarded," and that "regulations can be framed which will so far reduce the risk as to make cremation at least as safe as the existing method of burial."

With reference to such regulations, the first question considered was, "Who is to decide in each case whether a cremation is to be allowed?" It was suggested that either the medical officers of health or the coroners should perform this duty, and the chief coroner of London appeared in behalf of that body of officials. But the notoriously clumsy methods of the English Inquest Law were sufficient to defeat such reference in the opinion of the committee, and they finally decided to recommend the appointment of "medical referees specially qualified for the work." Fortunately, in Massachusetts, the introduction of improved inquest laws has furnished an intelligent body of officials to whom this duty has very properly been entrusted.

The second question to be considered was, "Whether the medical referee ought in every case personally to investigate the cause of death in such a way as to enable him to arrive at an independent conclusion on facts ascertained by himself, or ought merely to examine the medical certificates to see that they are satisfactory." To this inquiry the committee replied, "We have therefore come to the conclusion that before cremation is permitted, there must be in every case a personal inquiry by some one besides the medical attendant of the deceased."

More specifically the committee recommends that there should be required either (a) two certificates, one given by the medical attendant, the other by an independent person, — the medical referee, or a doctor nominated by the cremation authority, or a medical man holding some public responsible position—several of which are suggested in the report; or (b) a certificate given after a postmortem by a pathologist named by the cremation authority, who may or may not be the medical referee; or (c) a certificate by a coroner given after an inquest.

This investigation brought out some interesting facts in regard to the subject of exhumation for medico-legal purposes. It appears that in England, since 1893, annual returns are required from the coroners with reference to exhumations conducted

¹ Report of the Departmental Committee appointed to prepare a draft of the regulations to be made under the Cremation Act of 1902. Presented to both houses of Parliament by command of his Majesty. London, 1903.

under their orders. Hence the committee considered the question, "Whether the proposed regulations would be effective in cases where exhumation now takes place?"

During the nine years 1893-1901 the coroners had reported 95 cases of exhumation. Of these 67 had been ordered by coroners and 28 by the Secretary of State. So far, however, as the detection and punishment of serious crime is concerned, the result of all these exhumations in nine years in a population of over thirty millions is three convictions for murder, and one with a sentence of imprisonment for manslaughter. It seems clear, therefore, in the language of the committee, "that in these few cases where exhumation led to conviction and sentence for serious crime, the cremation of the body would have been impossible under the draft regulations, and that an application for cremation might possibly have resulted in the earlier detection of the crime. Further, as regards the more numerous cases mentioned, where exhumation led to no definite result, it is probable that, if in any of them application for cremation had been made under these proposed regulations, the inquiries which would have been made before the body had begun to decompose, and while the facts were still fresh in the memories of those concerned, might have resulted in the discovery of the cause of death, and, if there had been foul play, in the detection of the criminal."

The proposed regulations deal with the following subjects:

- (1) The maintenance and inspection of crematories.
- (2) The cases in which and conditions under which cremations may take place.
- (3) The disposition of the ashes after cremation.
- (4) The registration of cremations.

These proposed regulations are very fully and carefully drawn, and appear to cover every possible emergency, even to the cremation of the remains of still-born infants.

The appendices contain much interesting material, including the proposed blank forms, the regulations of existing crematories in England, and the laws of foreign countries upon this subject, including those of Massachusetts, the District of Columbia and the city of St. Louis.

THE PUBLIC HEALTH.

It would seem that information in regard to the life history of the typhoid bacillus is so complete, and so much a matter of common knowledge, as to make it doubly reprehensible that in an important educational center one of the worst of the recent

easily preventable epidemics should have taken place. It is reasonable to hope that a few additional communities, still negligent of the behest of the sanitarian, may profit to the extent of closing the door before, rather than after the loot of death. There are others, however, who will complacently say to themselves, we are secure, our water is filtered and pronounced safe by competent authority, we need fear no similar lesson of retribution. Such, indeed, may prove to be the fact, but even so they are not released from further effort. What of their ice supply? what of their milk supply? what of the care with which disinfection of excreta is practised in the sporadic cases, which competent authority says still impose a mortality tax of twenty-five deaths per 100,000 population in thickly settled communities?

Preventive medicine not only calls to her aid the pathologist, the bacteriologist, the epidemiologist, and the sanitarian, for instruction in the establishment of the rules of health and proper living, but she must rely upon the legislative body for laws embodying the principles of such of these rules as may be properly considered to affect the public health, and upon boards of health, both general and local, for supervision and enforcement of such laws, while assuming that the eventual details of personal hygiene will be scrutinized by the practitioner and attended to by the individual. Here is a chain whose weakest link may be easily parted, and it is a safe assumption that no community should flatter itself that all its links will stand the test. One spends millions for a new reservoir and protection of a water shed, and is content to let its citizens drink milk forty-eight hours from the cow, after twenty-four hours' storage in stable or shed, suiting the convenience of distributor or whim of housekeeper for early morning delivery; another insists on pure milk, and drinks water from grossly polluted wells; another coolly consumes its allotted pathogens served with salad or shellfish. A fond mother loudly protests against the neighbor's children who have whooping cough looking out of the window at her own, whom she hopes to keep germ free, while by the modish frills of her trailing skirt are entangled and diffused the mingled sweepings of a dozen streets. Vast sums are devoted to supplying "out door air" to discourage the growth of the tubercle bacilli already planted in the lungs of the indigent, while other sums collectively vast are spent to preserve in the homes of the well-to-do an atmosphere which, for temperature and humidity, is wonderfully adapted for favoring disease.

Community of interest, passing unrecognized, fails to arouse community of action. If a link fails the main chain for protection breaks; lateral chains

may or may not avail to hold the gate through which disease would enter. Where the most determined attack is made on the greatest common factor of disease, we may hope to find the least common multiple of annual deaths.

MEDICAL NOTES.

A CENTENARIAN. — It is reported that John Kehoe, who was probably the oldest person in Boston, died recently at the age of one hundred and five years.

THE FIRST BRITISH ARMY SURGEONS. — The first mention of surgeons in the British army is said to be found in 1223. There was a paid surgeon in the army of Edward I, which invaded Scotland in 1296.

A CENTENARIAN PHYSICIAN. — It is said that Dr. David of Montpelier, France, who recently celebrated his one hundred and second birthday, is the oldest living member of the medical profession. He practiced medicine till his ninety-eighth year, and is still in good health.

SANITATION OF CUBA. — According to the monthly report of Dr. Carlos J. Finlay, chief sanitary officer of the island of Cuba, it appears that Havana, as well as the rest of the island, has remained free from cases of yellow fever or smallpox originating within its territory. Precautions have been taken with regard to the introduction of bubonic plague, and for the purpose of disinfecting any suspected persons or vessels that may reach the island from infected ports. The sanitary department of Havana has continued the cleaning of houses and particularly the disinfection of tenements occupied by Chinamen. Somewhat drastic measures have at times been enforced to carry out the requirements of sanitation, but it is held that the end justifies the means taken.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 25, 1903, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 37, typhoid fever 7, measles 19, smallpox 1.

EXTENSION OF WORK OF TUFTS COLLEGE DENTAL SCHOOL. — It is announced that Tufts College proposes to extend the charitable work of the dental department, and for this purpose is desirous of securing a fund of \$100,000, the interest of which is thought to be sufficient to carry out the proposed plan.

THE INDEX MEDICUS. — The publication of the first number of the *Index Medicus* has been delayed by some unexpected difficulty with regard to the printing. It is to be remembered that although the Carnegie Institute has undertaken to support the *Index Medicus*, it is obviously desirable that a liberal subscription on the part of medical libraries and of physicians at large should give the managers of the Carnegie Institute a positive and practical assurance that this publication is really valued by the profession.

NEW YORK.

ORTHOPEDIC APPOINTMENT. — Dr. Frederick Mueller, recently assistant to Prof. Adolf Lorenz, and who accompanied the latter on his visit to America, arrived in New York from Europe on March 12, on his way to Chicago, where it is understood that he has been selected to fill the chair of orthopedic surgery in the medical school of the University of Chicago.

LEGAL APPLICATION OF BOARD OF HEALTH RECORDS. — By statute, where boards of health are required to register births, marriages and deaths, including causes of death, the record of these is *prima facie* evidence of the facts. But such records, the Court of Appeals holds, in the case of an administrator of an estate against the Metropolitan Life Insurance Company, are not evidence in an action upon a life policy to prove that the mother of the insured had died of pulmonary tuberculosis, and to impeach statements in that respect made in the application for insurance. In the opinion of the court the statute is a police regulation required for public purposes, and becomes *prima facie* evidence only so far as questions may arise under its provisions involving public rights. But, the court believes, it was not the intention of the Legislature to change the common-law rule of evidence in controversies of private parties growing out of contract, and the provisions of the statute should not, therefore, be construed as applicable to such cases.

TEACHING OF HYGIENE IN SCHOOLS. — In the course of a public lecture on "Tuberculosis and Children," delivered on March 16, by Dr. A. Jacobi, under the auspices of the Committee on the Prevention of Tuberculosis of the Charity Organization Society, he took occasion to criticise severely the extensive use of alcohol as a subject for hygienic teaching in the New York public schools. "What rot," he said, "the children are getting from the textbooks our taxes pay for, instead of the simple rules they ought to learn! Our schools are at the mercy of Mrs. Mary H. Hemtison of the Woman's Christian Temperance Union and of Eddyism."

HUDSON RIVER ICE POLLUTED.—On March 11 Dr. Daniel Lewis, state commissioner of health, appeared before the Senate committee on public health to urge the passage of the McCabe Bill, now pending in the Legislature, prohibiting the cutting of ice for domestic use on the Hudson River, between Waterford on the north and Coxsackie on the south, or within 3,000 feet below any town of more than 10,000 inhabitants on the river. At the same hearing Gen. Robert Avery of New York said that ice polluted by eighty sewers was sold for domestic purposes in New York City, and was frequently the cause of typhoid fever and other diseases. In the section of the Hudson excluded in the bill are the cities of Troy and Albany, and the mouth of the Mohawk River, on the banks of which many large towns are located.

A CENTENARIAN.—Mrs. Mary Johnson recently died in the almshouse on Blackwell's Island, at the reputed age of one hundred and five years. She was born in Ireland and was highly educated. Her husband was a civil engineer, and it is said that at one time she was well known in New York society.

A DEATH FROM HYDROPHOBIA.—Henry Stimson Loomis, the eight-year-old son of Dr. Henry P. Loomis, who was also a nephew of Dr. Lewis H. Stimson, died of hydrophobia on March 14. Six weeks previously his fox terrier was bitten by a large black poodle running loose on Fifth Avenue. Three weeks afterwards the terrier, without warning, bit the boy severely on the face, and slightly scratched his little sister. The animal was given into the care of the health department, and shortly afterwards died with all the symptoms of rabies, while inoculations with cultures from its spinal cord proved fatal to rabbits. Anti-rabic inoculations were immediately begun on young Loomis, but the infection which he had received seems to have been of unusual virulence, and on March 13 he was attacked with convulsions.

THE STRAINED RELATIONS AT ITHACA.—Renewed evidence of the strained relations which have existed during the typhoid epidemic at Ithaca between the faculty of the Cornell Medical School and the University Board of Trustees was furnished during the past week, when it was announced that Dr. Luzerne Colville had tendered his resignation, and that his resignation was immediately accepted. Dr. Colville, who has been lecturer on surgery in the medical staff of instruction in Ithaca, took a prominent part in the organization of the medical department of the university, and was appointed the first secretary of the medical faculty at Ithaca. His resignation is said to be on account of expressed differences between himself and the infirm-

ary committee of the trustees concerning the management of the infirmary. It is also stated that Dr. A. T. Kerr, the present secretary of the faculty and also assistant professor of anatomy, was made a member of the infirmary committee while the epidemic was at its height, but after serving forty-eight hours gave up the position; since which time no representative of the medical profession has been on the committee. As a result of his investigation of the conditions existing at the infirmary he made certain suggestions, and as the committee declined to carry them out, he felt compelled to withdraw. A death from typhoid fever in a Cornell student occurred at Utica, N. Y., on March 19.

A CASE OF GLANDERS.—Benjamin Hilson, fifty-two years of age, died recently at the Metropolitan Hospital on Blackwell's Island from glanders, and the autopsy in the case was made on March 20, by Dr. A. T. Weston of the coroner's office, in the presence of a number of interested physicians and surgeons. Hilson was an employee in a cigar factory on the East River, on the ground floor of the building next to which there is a horse market, and it is supposed that in this market he received the glanders infection in an injured finger.

A SAMUEL THOMAS MEMORIAL WARD.—At a meeting of the directors of the Manhattan Eye, Ear and Throat Hospital held March 17, it was announced that the widow and children of the late Gen. Samuel Thomas have made a gift of \$50,000 for the endowment of a ward with ten beds, to be called the Samuel Thomas Memorial Ward, in the new building which it is proposed to erect for the hospital. One hundred thousand dollars of the \$200,000 required for the building has now been subscribed.

DECISION ON THE DISTRIBUTION OF MILK.—On March 19 the Appellate Division of the New York Supreme Court rendered a decision to the effect that the section of the Sanitary Code which provides that "no milk shall be received, held, kept, offered for sale or delivery in the city of New York without a permit in writing from the Board of Health, and subject to the conditions thereof," is constitutional and valid under the police power of the State. In the case at issue, the main contention was that it was apparent on the face of the ordinance that it is unreasonable and void in that it makes it unlawful for hotels or even private consumers to have milk in their possession without a permit. Justice Laughlin, for the court, holds that the ordinance is susceptible of the construction that it is intended as a regulation of those offering milk for sale, rather than of consumers and can be held valid in that respect.

Correspondence.

LETTER FROM THE PHILIPPINES.

FROM OUR SPECIAL CORRESPONDENT.

THE CHOLERA EPIDEMIC—BUBONIC PLAGUE—SMALL-POX—A HILL SANITARIUM.

MANILA, Feb. 10, 1903.

At the present time, cholera is markedly abating in the Philippine Islands, though still very severe among the Mora natives of the Sulu group and the island of Mindanao. It has ceased as an epidemic on the island of Luzon, though cases keep cropping up throughout the provinces, showing the continued widespread existence of the infection. Should this infection survive until the beginning of the rains, as now seems highly probable will be the case, another epidemic, spread from existing foci under more favorable meteorological conditions, may be expected during the present year. No cases of cholera have occurred in Manila during the past fortnight, and but few since the beginning of the year. The quarantine of outgoing vessels sailing from Manila has been provisionally suspended for this reason, and also because most of the other islands of the archipelago are now, or have been, infected with cholera. Vessels sailing for the United States will not be subjected to quarantine unless passengers are from the badly infected parts of the southern islands, and have not completed five days since their departure from such places; but passengers will be inspected by the quarantine officers before a bill of health is granted. The cholera situation in the province of Albay, in the southern part of Luzon, looked very serious several weeks ago, but favorable meteorological conditions and energetic action by the health officials seem to have brought the epidemic under full control. Among the Moras of the southern islands, who are largely unfriendly, nothing can, of course, be done to stay the disease, but the epidemic appears to be gradually dying out from natural causes. So far, more than 80,000 deaths from cholera have been reported to the health authorities since the beginning of the epidemic, ten months ago; and these figures probably represent but little more than half the actual mortality from this cause, since in many cases the cause of death was concealed, or there was no sanitary organization through which the true state of affairs could be reported to the health authorities. A fair numerical estimate of the havoc which cholera has wrought in these islands would be placed at 160,000 deaths and 250,000 cases. How much these figures are to be increased during the present year it is, of course, impossible to say.

Looking back over the epidemic of the past ten months, one is impressed by the fact of the absolute hopelessness of maintaining an effective quarantine in these islands, either by land or sea, with the Filipino nature as it is. It has been necessary to not only fight the disease itself, but to come into constant conflict with the ignorance, superstition, fatalism and habits of life of the natives, for whose protection the sanitary work was being done. Not a regulation was made which the natives did not seem to take delight in disobeying if this could be done without punishment, and punishment for doing the unsanitary things which they and their ancestors had done all their lives merely created irritation and provoked resentment. To their way of thinking, all Americans were to be distrusted, and sanitary improvements were fraught with something harmful to the natives, even though outwardly for their benefit. Disease and pestilence were sent by a displeased heaven, and human efforts to avert them were not only futile but impious. Americans were thought guilty of spreading the cholera through the poisoning of wells—an idea favored by the free use of disinfectants where the disease was at its worst. Invocations to the saints were regarded as more efficacious than the use of boiled water, and charms and amulets as better protections against the disease than quarantine. Isolation of the sick was regarded as unnecessary, and cremation of the dead as revolting to religious ideas. With such beliefs firmly implanted in the Malay mind, the wonder is that so much good has been accomplished

and that the Filipinos have been saved from themselves, in spite of themselves, to such an extent.

A second point is that cholera is a disease readily amenable to control, if proper measures of prevention are carried out. This is particularly well illustrated in the case of troops, which in many instances have been kept free from the disease while the surrounding native population was being more than decimated. Where the cholera occurred among soldiers, its origin could almost invariably be traced to some flagrant violation of sanitary orders. In the few instances where the disease did fail to prevail to a considerable extent, the application of strict measures of quarantine, isolation, disinfection and the sterilization of food and drink, promptly brought the threatened epidemic to a close. Such well-marked examples of the protection afforded by this means were so frequent that it is scarcely too much to say that the cases which did occur among the troops were not only unnecessary but were a reflection upon the discipline of the command and the sanitary condition of the post. With boards of health clothed with ample powers, and with an intelligent civil population willing to co-operate in the execution of sanitary measures, the importation of cholera infection into a civilized community should be stripped of most of its terrors. There are always a few persons in even the best-ordered communities who, from ignorance, indifference or willfulness, will not do as they are told. This class is invariably attacked by cholera in the presence of an epidemic, and their demise is scarcely to the material injury of the community at large. The proportion of the irresponsible, worthless and vicious element of Americans who fell victims to cholera in Manila was very noticeable.

Another feature of the recent epidemic was its self-limited character. The disease would attack a hitherto uninfected district with great violence, a large number of cases would occur, and most of the individuals attacked would promptly die. As time went on, fewer persons would develop the disease, its course would be more protracted, and a gradually increasing proportion of cases would recover. Finally, the disease would die out, or the infection become quiescent, apparently more from an attenuation of the virulence of the germ than the lack of susceptible material—and more or less irrespective of such sanitary measures as were instituted. In its course the epidemic resembled that of a prairie fire, raging along the advance line, and leaving in its wake a space on which no more damage seems to be possible.

It was also demonstrated that no small proportion of the native population presented a natural immunity to the disease. Native conditions of life are such that where one member of the household contracted the disease the others were very probably exposed to infection from the same source; and in small villages deriving a common water supply from the same well, which was early infected, it is scarcely probable that any of the villagers escaped taking infectious material into the system. In spite of this, even in the worst infected places, from 25 to 35% of the population seemed to possess a complete resistance against the disease, although this relative immunity varied with the place and season, and presumably with the virulence of the specific micro-organisms.

The disease spread along the lines of travel, and, in the country districts, at the rate of ten or twelve miles daily, or about as much as a native and his bull cart could average as a fair day's journey. After it had gained entrance to a district, it was usually transmitted by means of water, through the use of infected foods, the unsanitary habits of the natives, and the transmission of the infection by personal contact played no small part in the dissemination of the disease.

Direct infection from the sick has been relatively rare, particularly so if the simplest precautions were taken for protection. In the cholera hospitals in Manila, with the hundreds of cases treated, scarcely a case occurred among the attendants, many of whom were natives and who probably did not fully carry out all sanitary precautions. Where several cases occurred in native families, those developed later seemed to spring from the original source of infection rather than direct contact with the sick. A certain number of cases from contact undoubtedly occurred, but they were by no means as many as it had been expected would occur.

An interesting feature of the cholera outbreak in Manila was its occurrence in Bilbid Prison, where about two thousand prisoners were confined, in spite of all precautions to prevent its entrance. These precautions included the use of boiled water, the non-use of uncooked food, the prohibition of any gifts being received by prisoners or their seeing visitors from outside, and the isolation of all new prisoners for five days before they were allowed to mix with the others. The first case of cholera appeared early in the epidemic in the city in the person of a prisoner who had been confined two days previously. Two days later the disease developed in a native, who occupied a room next to the one in which the first case appeared, and five days later it attacked a Chinaman in the main prison. No new cases appeared for about a month, and then three cases occurred in the same building, at intervals of three days. The two last cases were probably contacts. There were no more cases for six weeks, when the supply of distilled and boiled water failed, and the authorities of the prison allowed the prisoners to use hydrant water. About a week later a case of cholera appeared, and nine more cases developed at short intervals during the next fortnight. There was no apparent connection between any of these cases, as they appeared in different buildings, in different parts of the prison. Careful investigation showed that apparently the water was the sole agent by which the infection was conveyed within the prison walls. There was some delay in putting in distilling apparatus, and during the month twenty-three cases occurred. The day after the distilling plant started up one case developed, but no more appeared for several months; then six cases appeared in prisoners who were found to have used the bath water for drinking purposes. This epidemic in Bilbid Prison is important in that it gives much evidence to show that the Manila water supply was infected, a thing which was not supposed by the health authorities to have occurred. Careful examination of the water supply was continually made and checked by several observers, but the presence of the cholera spirillum was never detected. It was also argued that if the general water supply was infected, the epidemic would have been much more serious and widespread in Manila than it proved to be. It was known, however, that cases of cholera occurred in the watershed from which the city supply is drawn, and it was fair to presume that cholera discharges found their way into this supply. The water supply of Manila is insufficient, however, and during the cholera was very frequently drawn from the rapidly flowing Mariquina River and pumped directly to the city, without storage, where it was at once used up. Hence infections were liable to be only temporary and not continuous, as would have been the case had the sluggish waters of a large reservoir been contaminated.

Under the former conditions it is possible to conceive that the Manila water supply might have been infected for short periods from time to time, without any resulting permanent infection, the streams being cleared of infection by frequent flushing from the torrential rains. It may be, also, that the joints of some of the branches of the pipe may have been opened by earthquakes or accident when they passed through sewage polluted ground, and that cholera discharges in this way gained access, from time to time, to certain parts of the water system. That there occurred a general and continuous infection of the water supply, such as existed in the Hamburg outbreak of 1892, there is no reason to believe; else the number of cases which should have occurred in Manila would have been ten times the 4,000 which actually appeared. The epidemic would have been fulminant in type, and a large number of cases would have developed in a short period, with a persistently infected water supply. This fact was shown in outbreaks on the island of Panay and elsewhere, where a fourth of the population of large towns contracted the disease. Had the same conditions obtained in Manila, with its large population, it is fair to presume that from seventy-five to a hundred thousand cases of cholera would have occurred.

Bubonic plague still maintains a foothold in Manila, although but few cases occur. New cases develop from time to time with considerable regularity, and the infection does not seem to be strictly limited to any particular

section of the city, though the majority of cases occur in the Chinese districts and those inhabited by the poorer class of natives. Practically all those attacked by the disease die promptly. The health officers maintain a number of gangs of rat catchers, who are constantly at work, and the number of plague rats has been growing less and less until now they have practically disappeared. The work of rat-catching is still kept up as a precaution, however, and every effort is being made to improve the sanitary condition of the poorer districts.

Owing to the outbreak of smallpox at several points in the provinces, the Board of Health has decided that every person in Manila must be vaccinated. The number of vaccinators has been added to, and it is expected that the work will be completed in the course of the next two months. Several sharp outbreaks have occurred on the islands of Samar, Luzon and Leyte, and wholesale vaccinations are in progress on those islands. In the last six weeks, 210,000 units of vaccine virus have been sent out from the government laboratories, 150,000 of which were used for vaccinations in Manila alone.

The sanitarium idea developed by the British in the establishment of their "hill stations" in India is being followed by the authorities in the Philippines in their creation of a sanitarium and resort in the mountains at Bagnio, Bengnet Province, and the practical removal of the seat of the insular government to that place, during the rainy season in Manila, which is expected to be inaugurated during the present year. A sanitarium was projected in Bengnet Province by the Spanish authorities, but the plan was never carried out. The site selected, and upon which a sanitarium, hotel, etc., is now being constructed, and near which the military authorities have reserved a tract of land for an army station, is located in the northern part of Luzon and about forty miles from San Fernando de Union, the nearest seaport. The great drawback to the site is its inaccessibility, as a large part of the trip must be made on litters carried by Igorrotes or on horseback, and the trail is so difficult from San Fernando as to make it necessary to spend three days in accomplishing the forty-mile journey from that station. The government is now spending \$200,000 on a good wagon road to run through Pozorubio to connect with the Manila and Dagapan Railway, and good access to Bagnio should be had within four or five months. It will mean much to the Philippines to bring Manila into ready communication with the new sanitarium, since the sick and those broken down by overwork or the climate are now forced to leave the islands and go to Japan or the United States to recuperate.

The mountains of Bengnet are very high and rugged, and are covered with pines above the altitude of about four thousand feet. The air is very cool and bracing, and the climate very similar to the tablelands of Arizona, except for the greater dryness of the air of the latter. There are many deep canons containing rushing mountain streams of clear water, and the pine forest is broken here and there by grassy parks. The soil consists principally of a reddish clay, black loam, conglomerates and limestone. While the climate is as cool, invigorating and favorable to the sick as that of the tablelands of Colorado, Arizona and New Mexico, it can never be regarded as favorable for lung troubles because of the humidity. Observations taken by the Spaniards place the mean maximum temperature at 73° F., while the thermometer often falls to 42° or 43° F. just before daybreak. The mean humidity reported by the Spanish commission was 62.25, the highest 72 and the lowest 52, taken during the months of November, December, January and February. During the summer months the percentage of humidity is less. A fog usually drifts in from the China Sea about evening, and fires are required for comfort. Mosquitoes are few in number, and the region appears to be free from malaria. There are a number of thermo-medical springs in the vicinity. The country in the vicinity is known to produce many of the fruits and vegetables grown in the temperate zone, and there would seem to be no reason why the others should not grow there. The new sanitarium would seem to be well adapted for the recuperation of cases of general debility, anemia, malarial cachexia, diarrheas and dysentery, and as a summer home for the Americans, especially the women and children, living in the islands.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 14, 1903.

CITIES.	Population Estimated, 1900.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Whooping cough.	Scarlet fever.	
New York . . .	3,785,156	1,416	401	21.48	22.34	2.75	.49	1.30	
Chicago . . .	1,985,270	631	167	25.18	20.06	2.87	1.58	.63	
Philadelphia . .	1,378,527	577	128	23.05	17.68	2.08	.52	.35	
St. Louis . . .	618,481	—	—	—	—	—	—	—	
Baltimore . . .	538,712	231	60	28.14	18.61	—	—	4.32	
Cleveland . . .	427,731	—	—	—	—	—	—	—	
Buffalo . . .	387,994	—	—	—	—	—	—	—	
Pittsburg . . .	351,745	165	11	29.09	22.42	1.82	6.06	—	
Cincinnati . . .	335,140	—	—	—	—	—	—	—	
Milwaukee . . .	315,307	—	—	—	—	—	—	—	
Washington . . .	295,103	—	—	—	—	—	—	—	
Providence . . .	191,230	82	31	25.60	23.16	3.65	1.23	—	
Boston . . .	603,163	257	68	20.21	19.06	2.33	1.95	.39	
Worcester . . .	132,044	41	17	7.32	29.26	—	—	2.43	
Fall River . . .	115,549	52	22	21.12	36.53	1.92	—	1.92	
Lowell . . .	101,959	31	10	12.90	9.67	—	—	—	
Cambridge . . .	98,639	39	12	15.38	17.35	—	2.66	—	
Lynn . . .	72,497	34	8	17.65	—	2.94	8.82	—	
Lawrence . . .	69,766	26	11	15.40	19.25	—	—	—	
Springfield . . .	69,339	32	3	15.62	15.62	3.12	—	3.12	
Somerville . . .	68,110	23	5	21.74	21.74	4.35	—	—	
New Bedford . .	67,198	39	16	15.38	20.51	2.56	—	10.25	
Holyoke . . .	49,298	—	—	—	—	—	—	—	
Brookton . . .	44,873	11	8	36.36	—	—	—	18.18	
Haverhill . . .	42,104	14	—	14.28	21.42	—	—	—	
Newton . . .	37,794	20	5	10.00	25.00	—	—	—	
Salem . . .	36,876	18	6	11.11	—	—	—	—	
Malden . . .	36,296	11	5	—	9.09	—	—	—	
Chelsea . . .	35,876	16	5	12.50	—	6.25	—	—	
Fitchburg . . .	35,069	8	2	—	25.00	—	—	—	
Taunton . . .	33,658	9	0	11.11	22.22	—	—	—	
Everett . . .	28,620	6	1	16.67	—	—	—	—	
North Adams . .	27,862	16	3	31.25	12.50	—	—	—	
Gloucester . . .	26,121	12	5	25.00	—	16.67	—	—	
Quincy . . .	26,043	4	1	25.00	—	—	—	—	
Waltham . . .	25,198	8	1	25.00	25.00	—	—	—	
Brookline . . .	22,608	4	—	—	25.00	—	—	—	
Pittsfield . . .	22,589	9	0	33.33	11.11	11.11	—	—	
Chicopee . . .	21,031	11	5	45.45	9.09	—	—	18.18	
Medford . . .	20,992	9	3	—	33.33	—	—	—	
Northampton . .	19,838	—	—	—	—	—	—	—	
Beverly . . .	15,302	3	1	—	33.33	—	—	—	
Clinton . . .	15,161	3	—	—	—	—	—	—	
Leominster . . .	14,806	—	—	—	—	—	—	—	
Newburyport . .	14,478	1	1	100.00	—	—	—	—	
Woburn . . .	14,300	9	2	—	33.33	—	—	—	
Hyde Park . . .	14,175	8	2	37.50	12.50	—	—	12.50	
Adams . . .	13,745	—	—	—	—	—	—	—	
Attleboro . . .	13,677	—	—	—	—	—	—	—	
Marlboro . . .	13,609	7	3	—	28.60	—	—	—	
Melrose . . .	13,600	2	—	—	—	—	—	—	
Westfield . . .	13,418	7	—	—	14.20	—	—	—	
Milford . . .	13,130	—	—	—	—	—	—	—	
Revere . . .	12,722	3	—	66.67	—	33.33	—	—	
Framlingham . .	12,584	6	—	50.00	16.67	—	—	—	
Peabody . . .	12,179	—	—	—	—	—	—	—	
Gardner . . .	11,928	—	—	—	—	—	—	—	
Weymouth . . .	11,344	5	0	40.00	—	—	—	—	
Southbridge . . .	11,268	—	—	—	—	—	—	—	
Watertown . . .	11,077	3	—	—	—	—	—	—	
Plymouth . . .	10,730	—	—	—	—	—	—	—	

Deaths reported, 3,919; under five years of age, 1,023; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 875, acute lung diseases 799, consumption 431, scarlet fever 37, whooping cough 42, cerebrospinal meningitis 13, smallpox 9, erysipelas 9, measles 39, typhoid fever 82, diarrheal diseases 72, diphtheria and croup 86.

From whooping cough, New York 7, Chicago 10, Philadelphia 3, Pittsburg 10, Providence 1, Boston 5, Lynn 3, and Cambridge, Somerville and Chelsea 1 each. From erysipelas, Chicago 2, Philadelphia 5, Baltimore 1, Springfield 1. From smallpox, Chicago 2, Philadelphia 5, Pittsburg 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,075,011, for the week ending Feb. 28, the death-rate was 16.6. Deaths reported, 4,789; acute diseases of the respiratory organs (London) 271, whooping cough 103, diphtheria 81, measles 104, smallpox 17, scarlet fever 52.

The death-rate ranged from 8.2 in Handsworth to 24.3 in Wigan; London, 16.3, Westham 16.1, Brighton, 15.8, Portsmouth 13.9, Southampton 14.7, Plymouth 20.5, Bristol 15.8, Birmingham 20.1, Leicester 18.0, Nottingham 17.6, Bolton 12.6, Manchester 20.9, Salford 23.0, Bradford 13.8, Leeds 15.6, Hull 15.0, Newcastle-on-Tyne 16.9, Cardiff 16.3, Rhondda 16.1, Liverpool 20.7, Burton-on-Trent 17.2, Kings Norton 9.8, Great Yarmouth 17.1.

METEOROLOGICAL RECORD.

For the week ending March 14, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.		Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily maximum.	Daily mean.	Daily minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . .	30.24	46	54	39	87	97	92	S	SW	18	15	R.	R.	.42
M. . .	30.44	46	54	38	96	100	98	NE	NE	18	19	R.	R.	1.03
T. . .	30.48	39	42	36	96	98	97	N	E	14	4	O.	O.	.12
W. . .	30.22	47	54	40	94	91	92	SW	NW	20	11	R.	C.	.47
T. . .	30.28	44	50	39	87	74	80	N	S	8	10	C.	C.	O.
F. . .	30.20	50	63	38	88	78	83	W	E	7	2	C.	C.	O.
S. . .	30.18	50	61	40	81	72	76	W	SW	4	9	C.	C.	O.
Mean for week.	30.29	54	38	—	—	88	—	—	—	—	—	—	—	2.04

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † indicates trace of rainfall. ⁴⁵ Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING MARCH 21, 1903.

A. W. KAINES, acting assistant surgeon. Appointment revoked to take effect upon reporting of relief.

F. L. BENTON, passed assistant surgeon. Ordered to the Naval Station, Cavite, P. I.

G. A. LUNG, surgeon. Detached from the Bureau of Medicine and Surgery, and ordered to the Naval Hospital, Philadelphia, Pa.

J. STEPP, assistant surgeon. Detached from the Isla de Luzon and ordered home to wait orders.

P. L. COCKE, acting assistant surgeon. Ordered to the Naval Academy, Annapolis, Md.

F. A. HESLER, surgeon, died March 11 on board U. S. S. "Wilmington," en route from Cavite, P. I., to Yokohama, Japan.

SOCIETY NOTICE.

ANNUAL MEETING OF THE AMERICAN UROLOGICAL ASSOCIATION.—The annual meeting of this association will be held the last day of the American Medical Association's meeting and the day following, at New Orleans, May 8 and 9.

FRED. C. VALENTINE, M.D.
Secretary.

RECENT DEATHS.

BENJAMIN MILLER VAN SICKLE, M.D., a graduate of Rutgers College and Bellevue Hospital Medical College, and for several years a practicing physician in New York, died at his mother's residence in Newark, N. J., on March 15, at the age of forty-six.

GEORGE BEERS, M.D., of New York died from pneumonia on March 16, in the thirty-fourth year of his age. He was born in New York and was graduated from the College of Physicians and Surgeons in that city.

J. L. CILLEY, M.D., of Brooklyn, N. Y., died on March 18. He was born in Cincinnati on Jan. 25, 1838, and was a graduate of Harvard University and the Miami Medical College in Cincinnati. He was for nineteen years demonstrator of anatomy in the Ohio Medical College and also occupied for some time the position of professor of anatomy at the Cincinnati Art Academy. During the Civil War he served in both the army and the navy. He went to New York eighteen months ago, and soon became favorably known among the artists of the city through his lectures on "Anatomy for Artists."

BOOKS AND PAMPHLETS RECEIVED.

Systemic Infection due to Natural Teeth Conditions. By D. D. Smith, M.D., of Philadelphia. Reprint. 1903.

Polypoid Growths in Children vs. Prolapse. By Lewis H. Adler, Jr., M.D., of Philadelphia. Reprint. 1903.

The Excision of Cancer of the Rectum. By Lewis H. Adler, Jr., M.D., of Philadelphia. Reprint. 1903.

Du Traitement Hydro-Mineral des Maladies de L'Estomac. By M. Albert Robin. Reprint. Paris, 1902.



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References.—Dr. H. O. Marcy, Boston Sanitarium, Cambridge: "Your method of securing natural sleep has been invaluable to me."

Pres. L. Clark Seelye, Smith College, Northampton. "I avoid insomnia by employing the respiratory function similar to your instructions. Quote my statement if of any use to you."

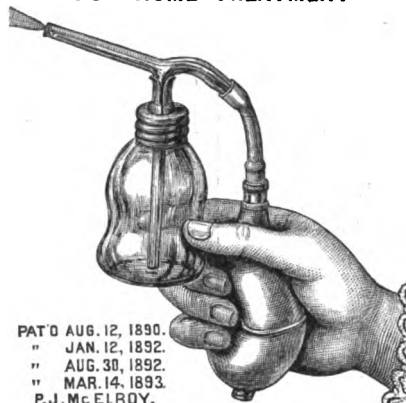
Dr. T. D. Crothers, Hartford, Conn., Sanitarium for Cure of the Alcohol and Drug Habit. "Your system for inducing sleep without drugs is the most rational and complete of any that has been presented. I believe it will come into great practical use in the near future."

Dr. Robert T. Edes, Boston. "I have been much interested in your method of inducing sleep since you described it at Montreal. It seems to me to combine two useful factors,—moderate muscular exertion with enough mental employment to take the attention away from disturbing thoughts."

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Third Year.—Theory and Practice, Clinical Medicine, Surgery, Clinical Surgery, Obstetrics, Pediatrics, Dermatology, Neurology, Gynecology and Mental Diseases.

Fourth Year.—*Required Studies:* Clinical Medicine, Clinical Surgery, Ophthalmology, Otology, Laryngology, Orthopedics, Legal Medicine, Syphilis and Hygiene. *Elective Studies:* Ophthalmology, Otology, Orthopedics, Gynecology, Dermatology, Neurology, Bacteriology, Physiology, Physiological and Clinical Chemistry, Hygiene, Operative Surgery, Operative Obstetrics, Anatomy, Embryology, Clinical Microscopy.

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